ZOOM
TECHNOLOGIES

VMware

Lab Manual

VMware Vsphere

Certification Mapped Course

Lab Manual

Introduction

This lab manual has been designed as a supplement to the VMware VSphere mapped administration course offered by Zoom Technologies.

With virtualization and cloud technologies taking centre stage across the globe, it becomes imperative for the system administrator to have a reference manual which leads him right from the basics of Hypervisor installation to configuring fault tolerance across virtual machines. This lab manual does exactly that.

We have taken great care to explain every exercise in a step by step manner with extensive screenshots. We have again opted for an approach which is familiar to Zoom students, dividing each exercise into clear sections:

- Objective
- Pre-requisites
- Tasks
- Configuration
- Verification

We hope this lab manual would be beneficial to the professional even at his workplace and not just during the training. We have reviewed and revised this to eliminate errors but feedback and suggestions are always welcome.

Table of Contents

LAB-1: INSTALLING ESXi

Objective:

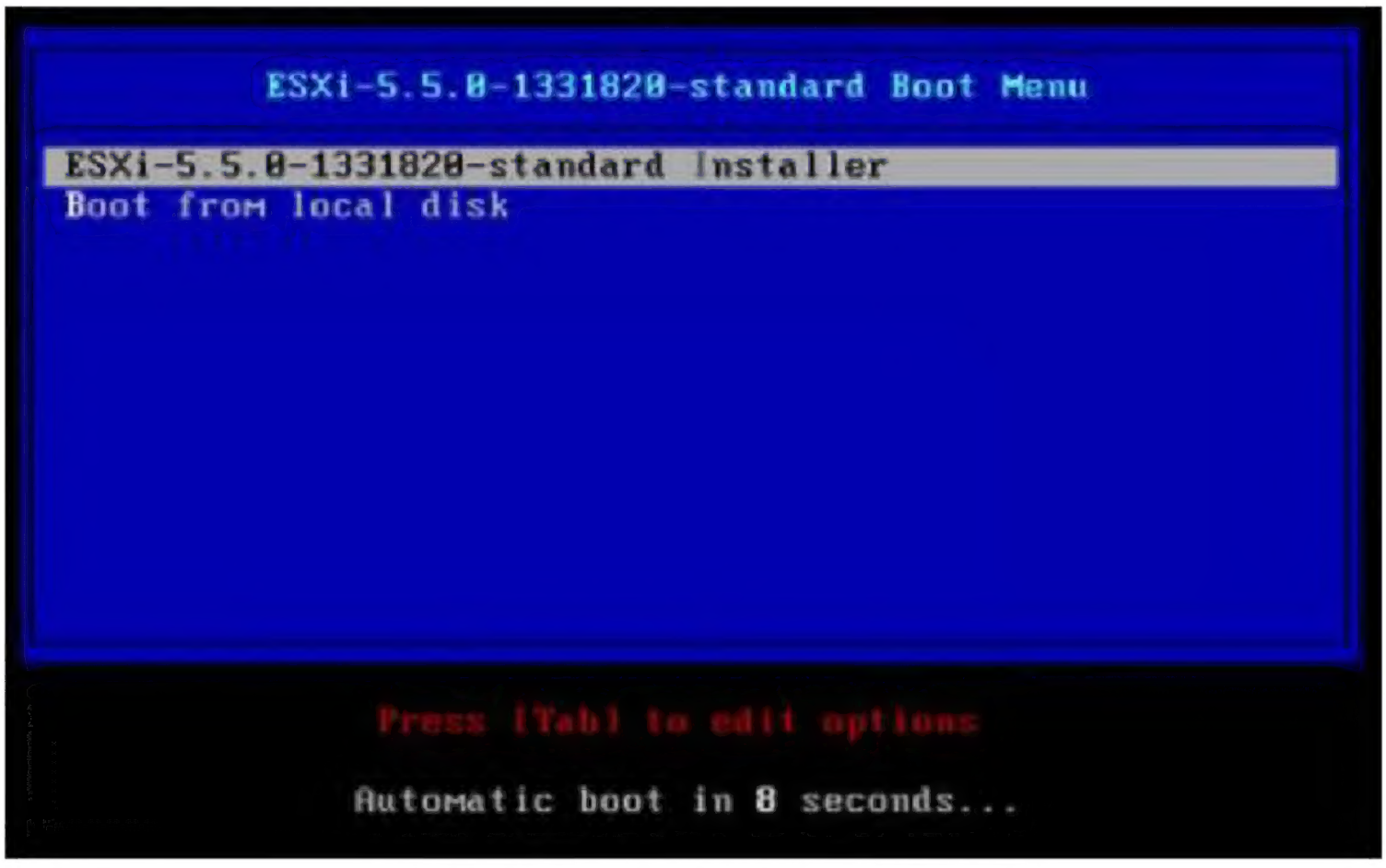
To Install ESXi on a Server

Pre-requisites:

Server, CD/DVD with iso image of ESXi

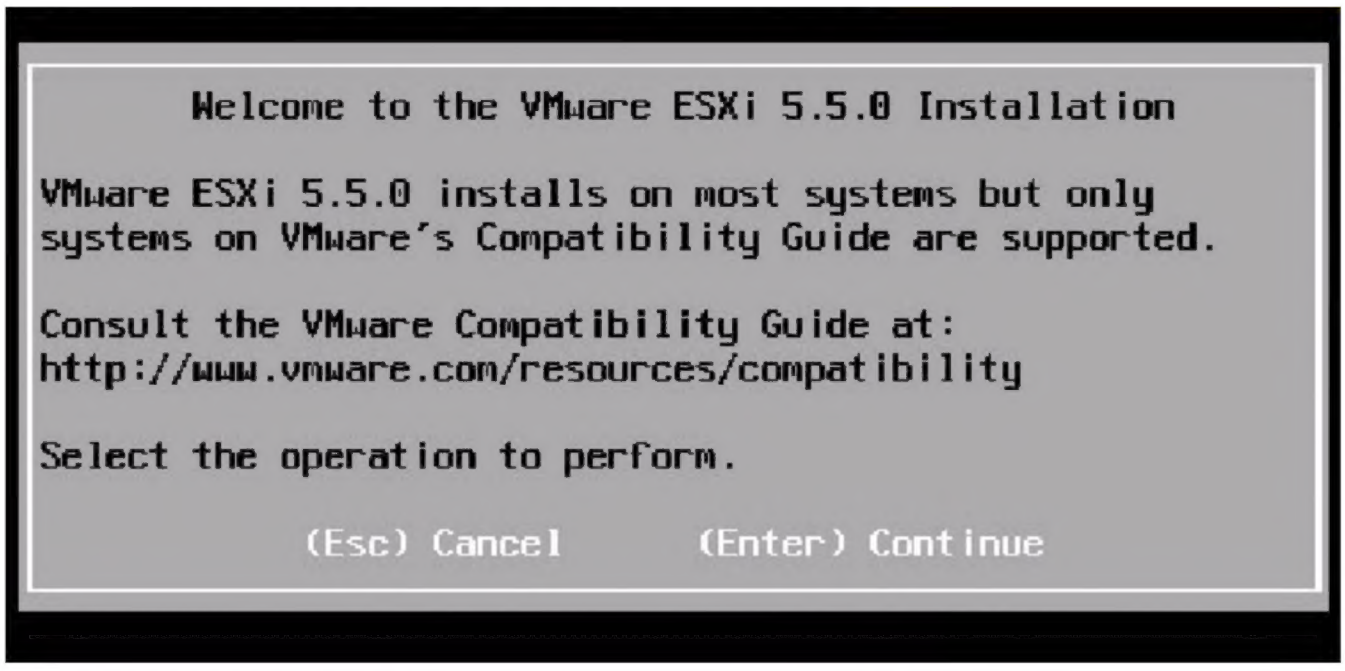
Steps:

1. Power on the Server

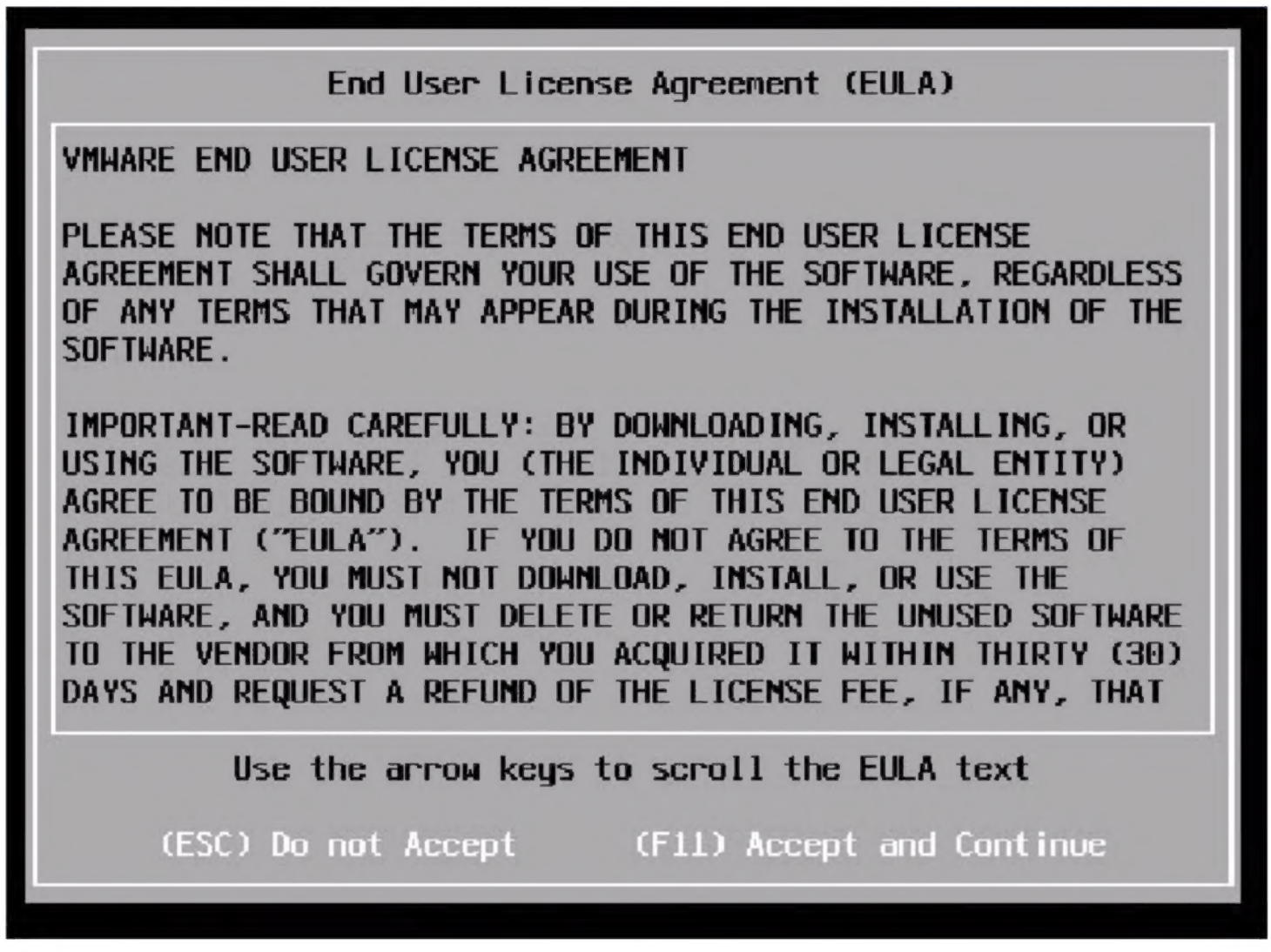


2. Enter to start the Installation

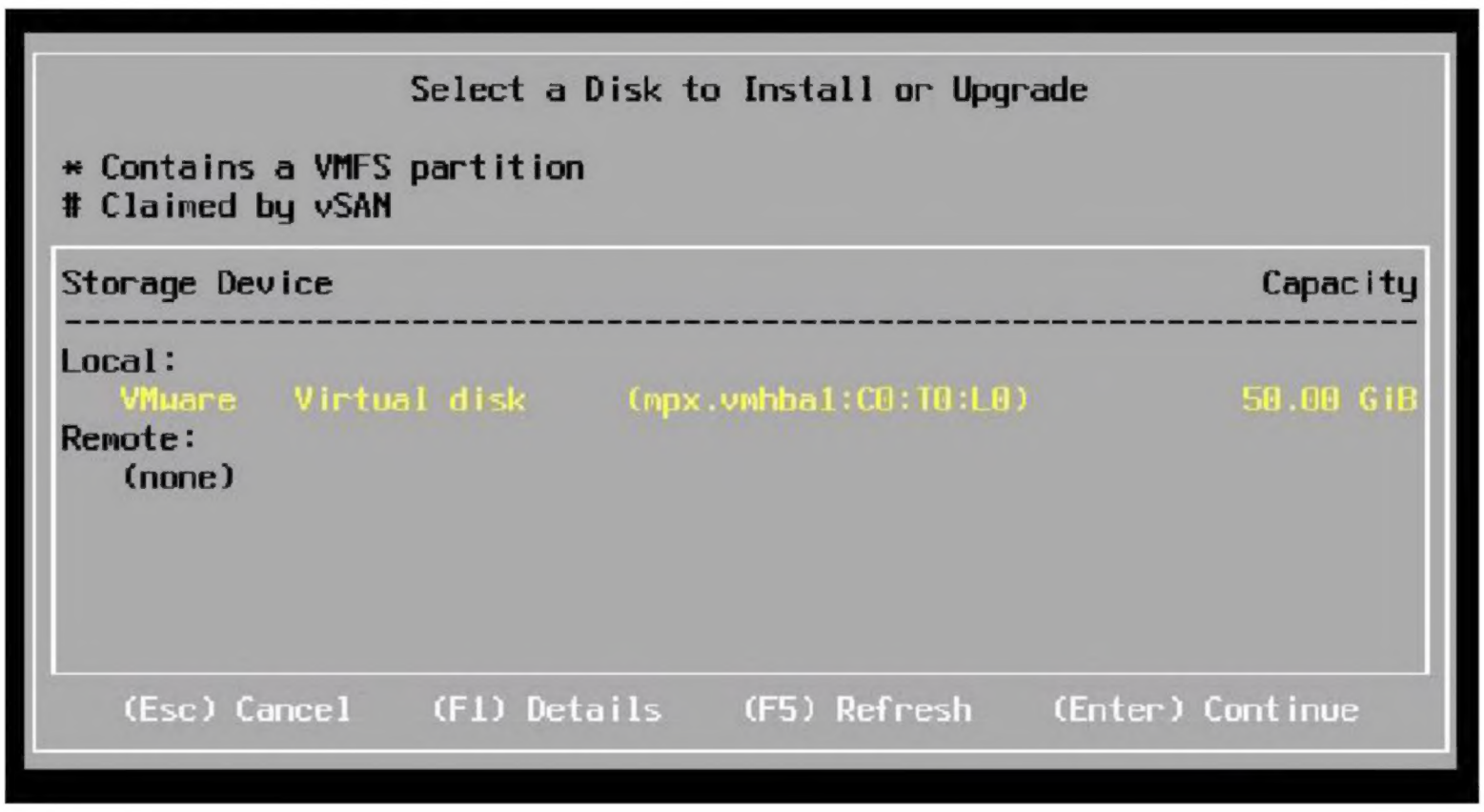
3. System copies the files from the installation media



4. Enter to continue with the installation



5. Press F11 to accept EULA

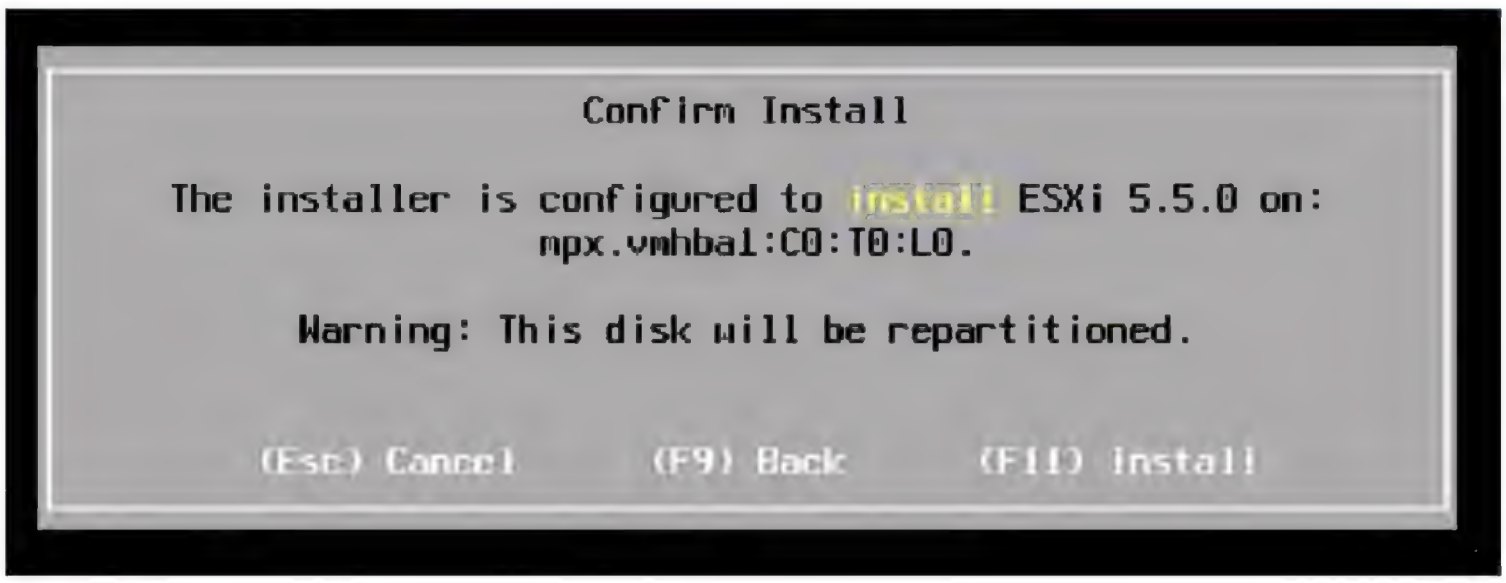


6. Select a disk to install, Enter to Continue

7. Select a keyboard layout, Enter to Continue

8. Enter the new root password

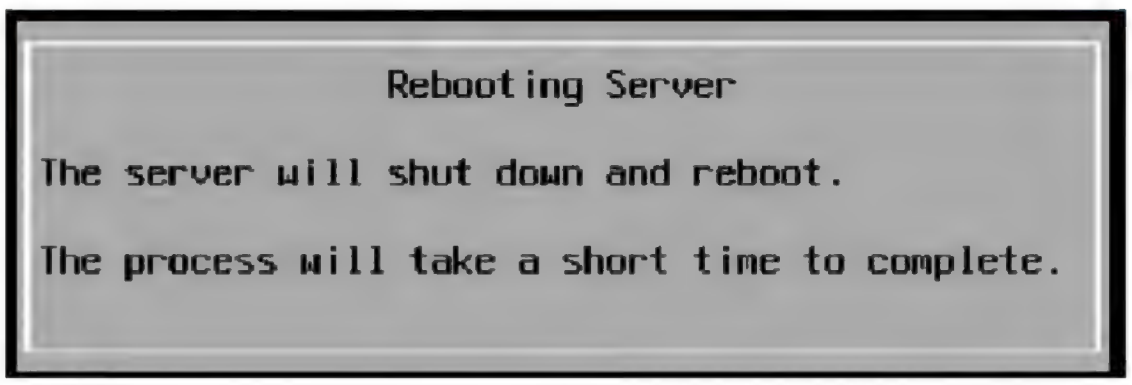
9. Enter to Continue



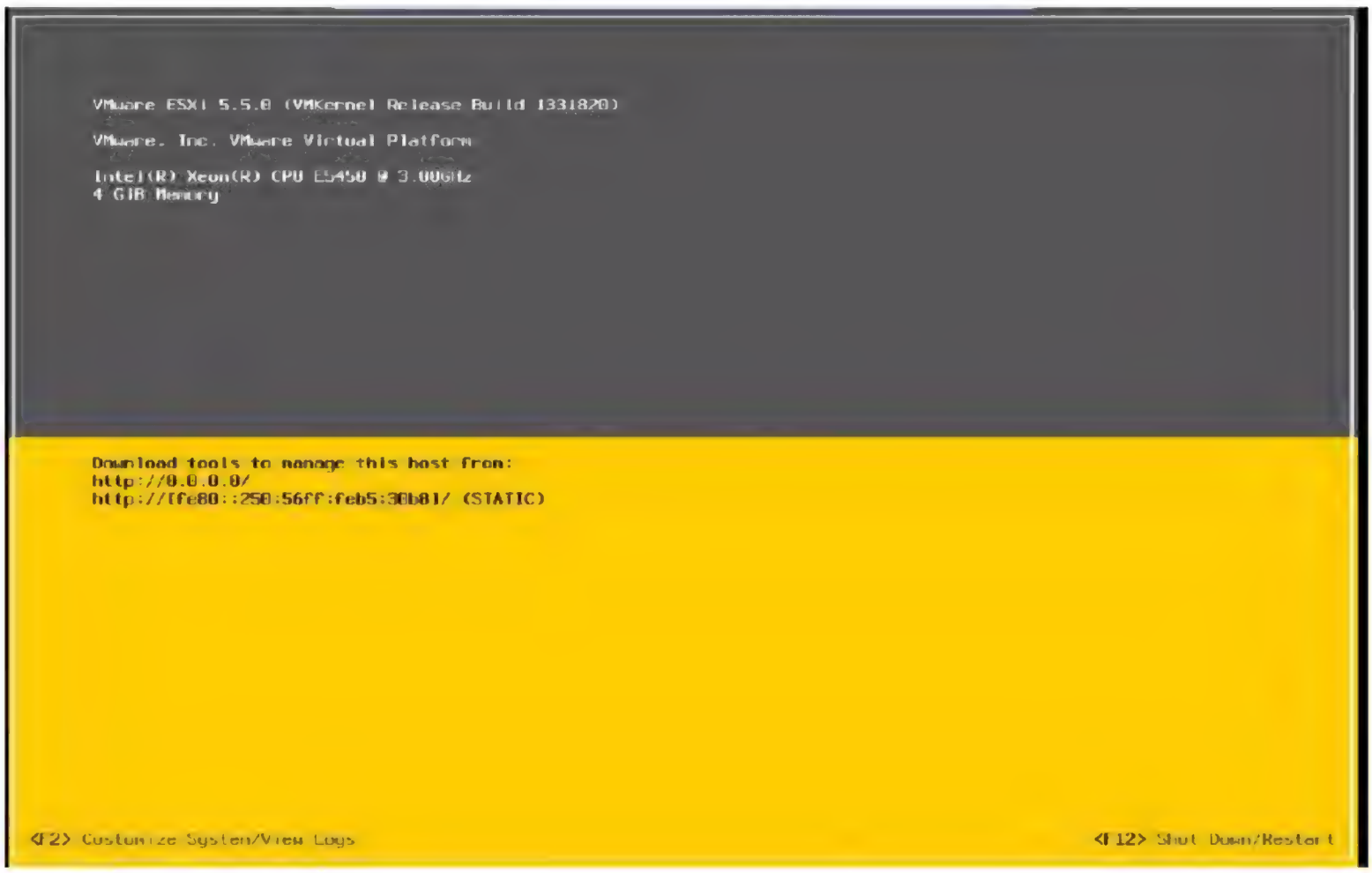
10. Press F11 to confirm the installation

11. Installation will start

12. Enter for Reboot of server



13. Installation of ESXi is complete



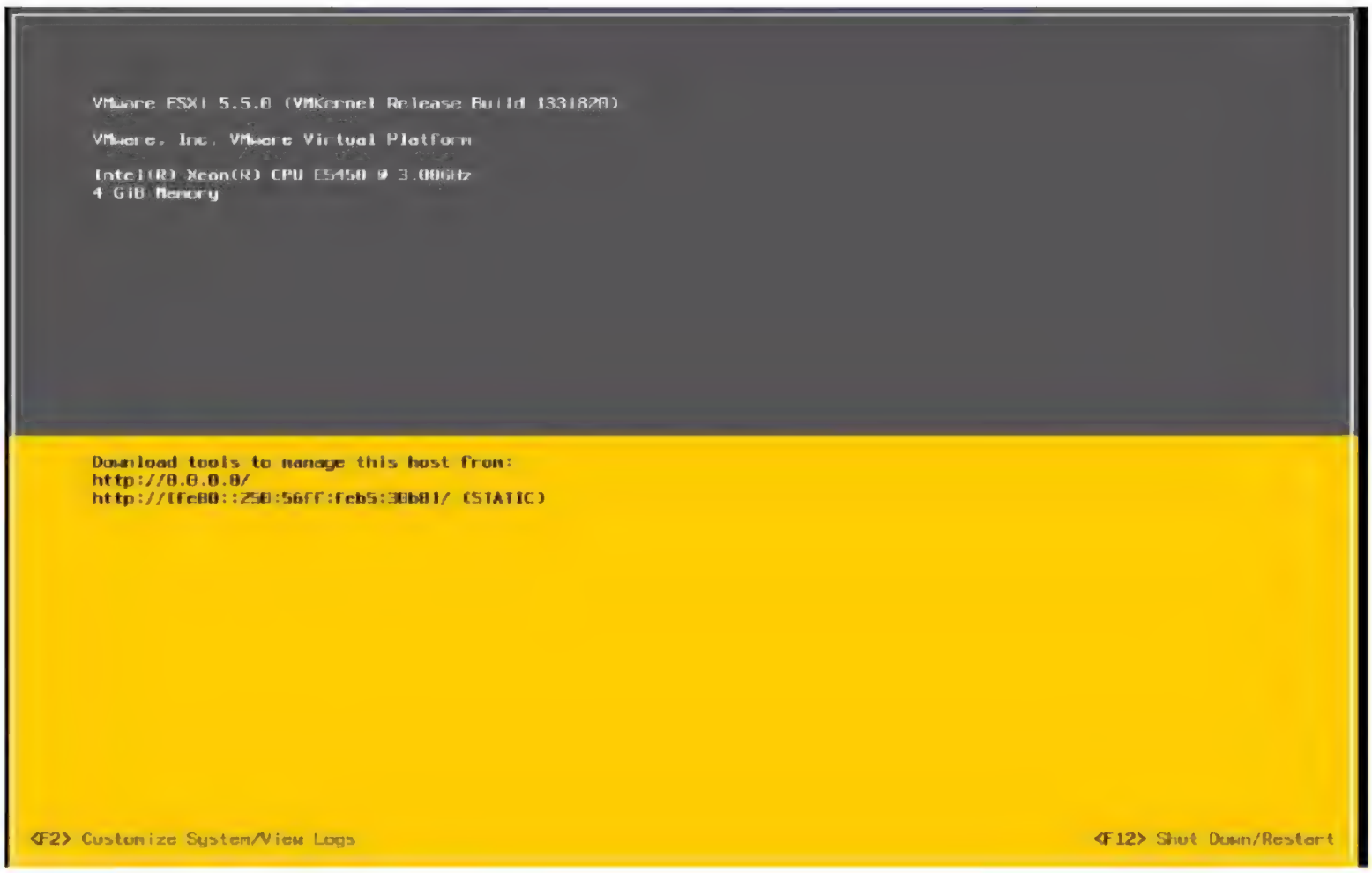
LAB-2: CONFIGURATION OF ESXi USING DCUI

Objective:

To do the initial configuration of ESXi

Tasks:

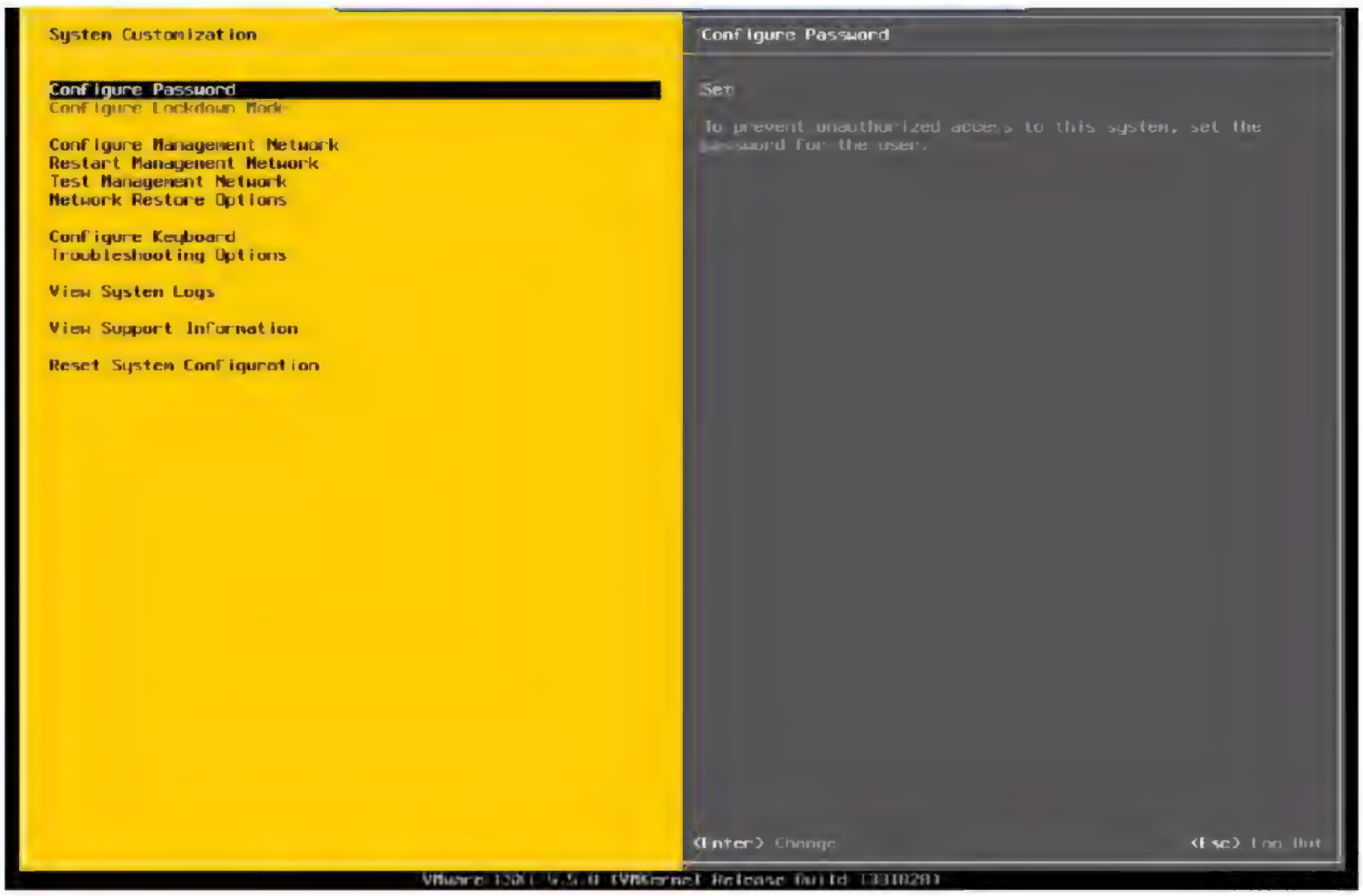
- Configuring IP Address
- Default Gateway
- DNS
- Hostname
- Enabling shell access



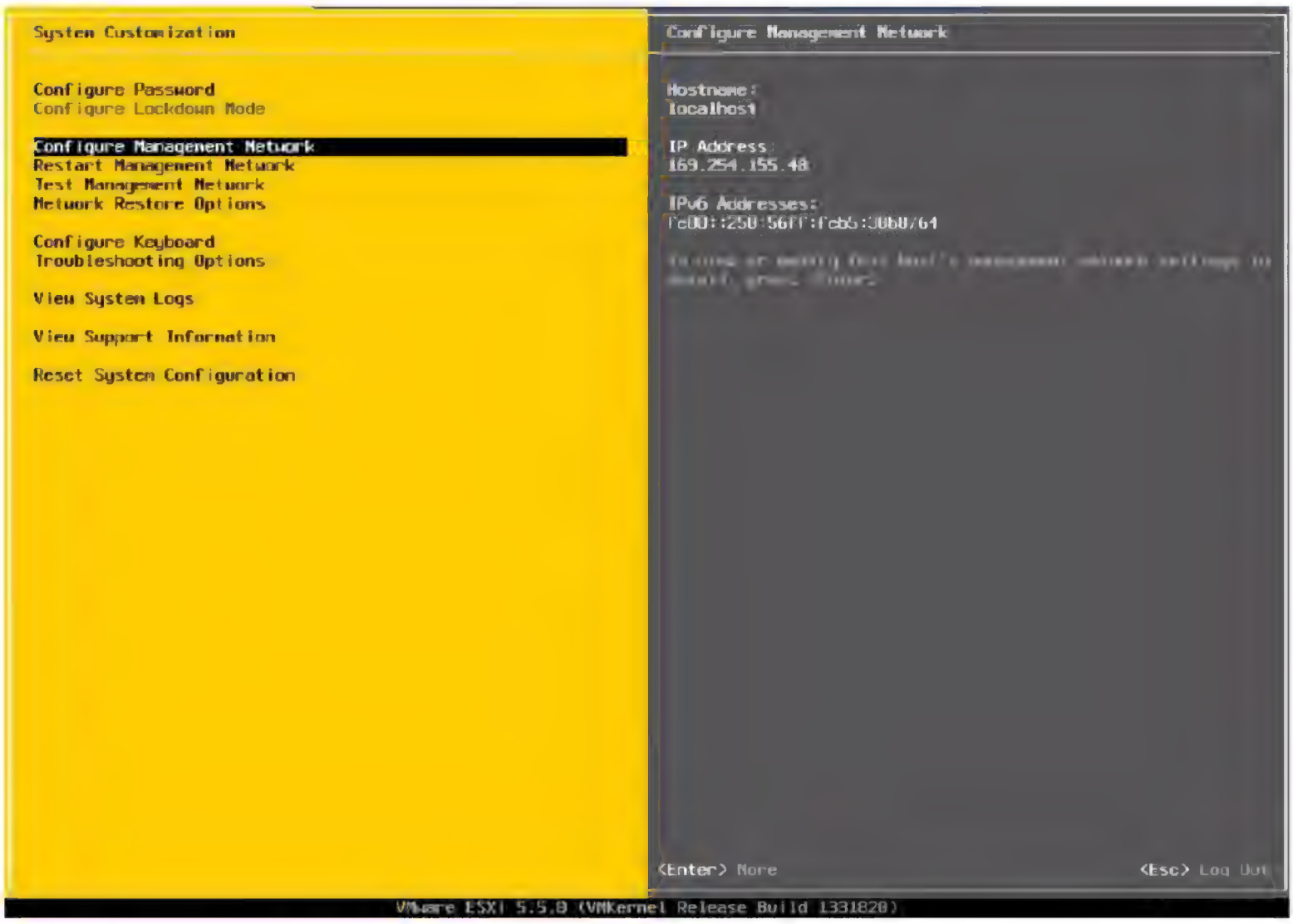
Steps:

1. Press F2 to Login to DCUI

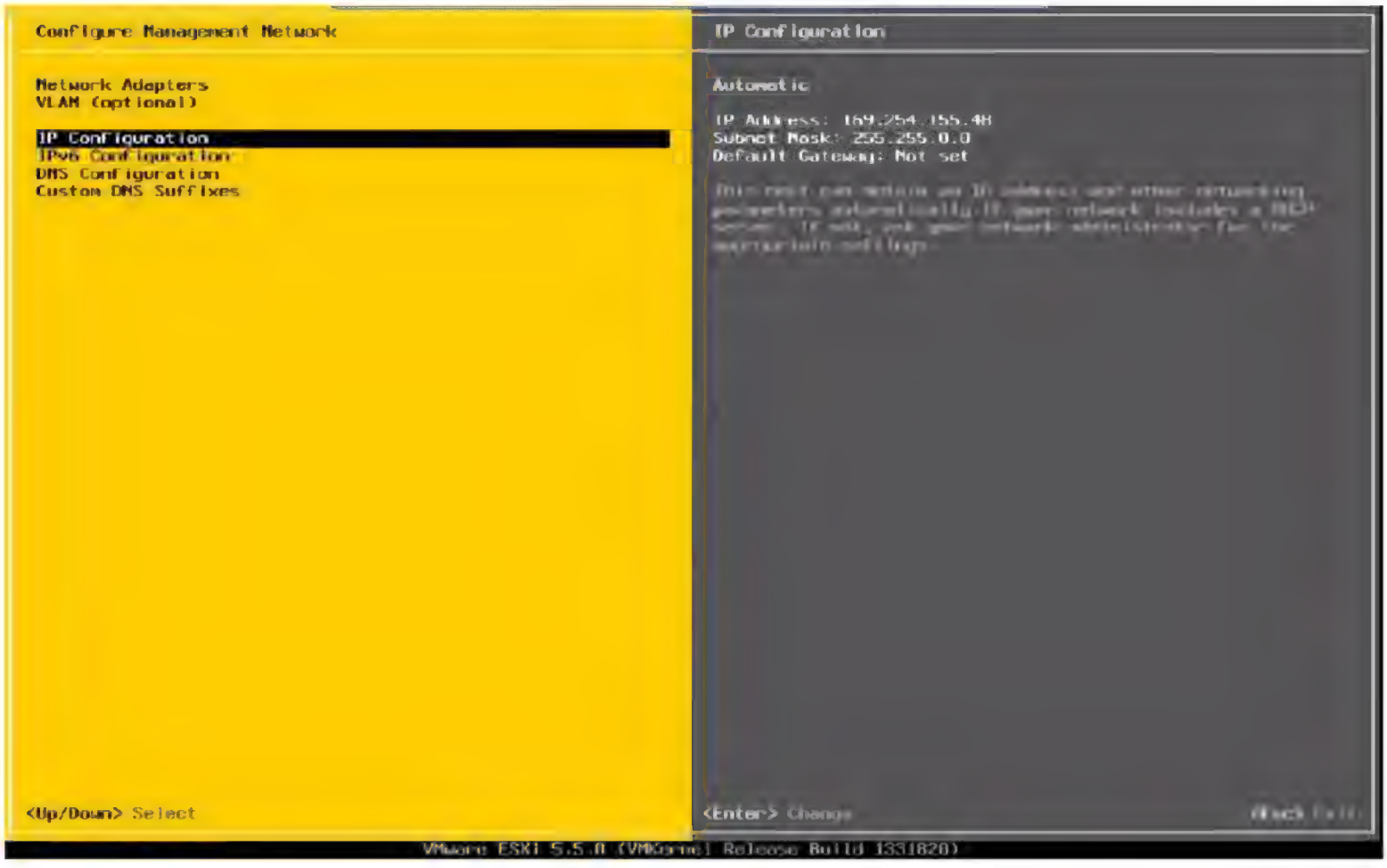
2. Enter the credentials, Enter to continue



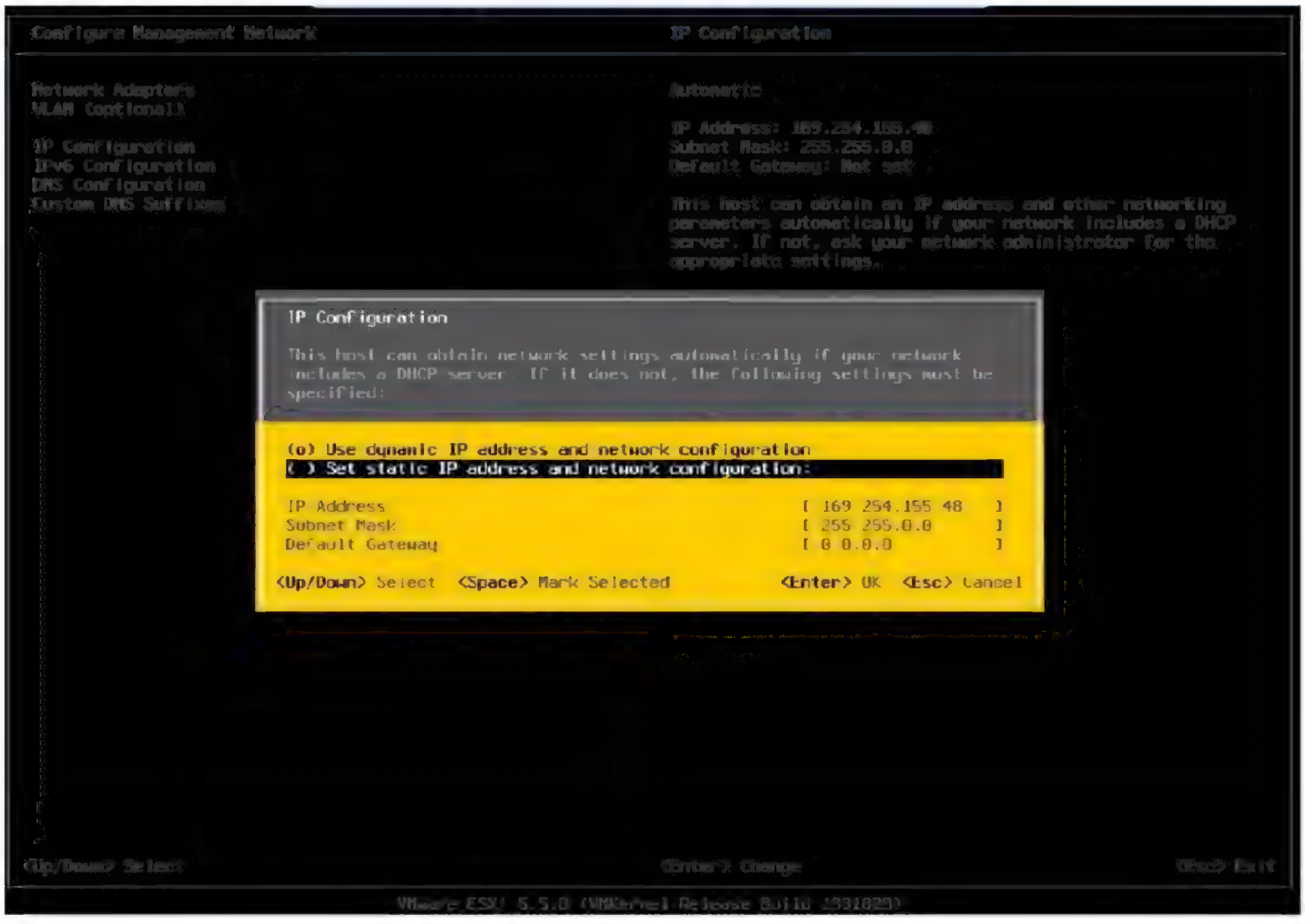
You are in DCUI



3. Drop down to configure Management Network, Enter

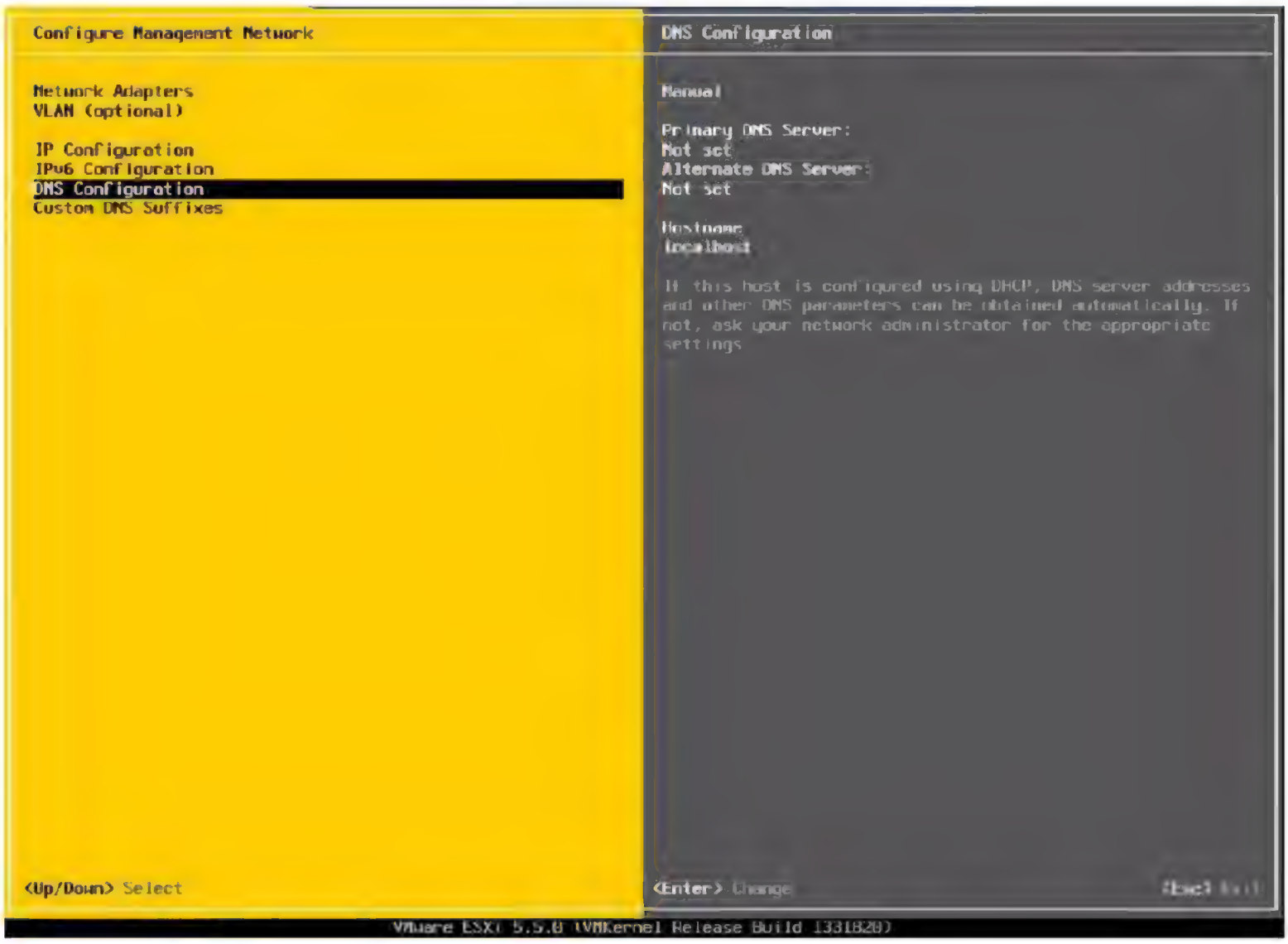


4. Dropdown to IP configuration, Enter

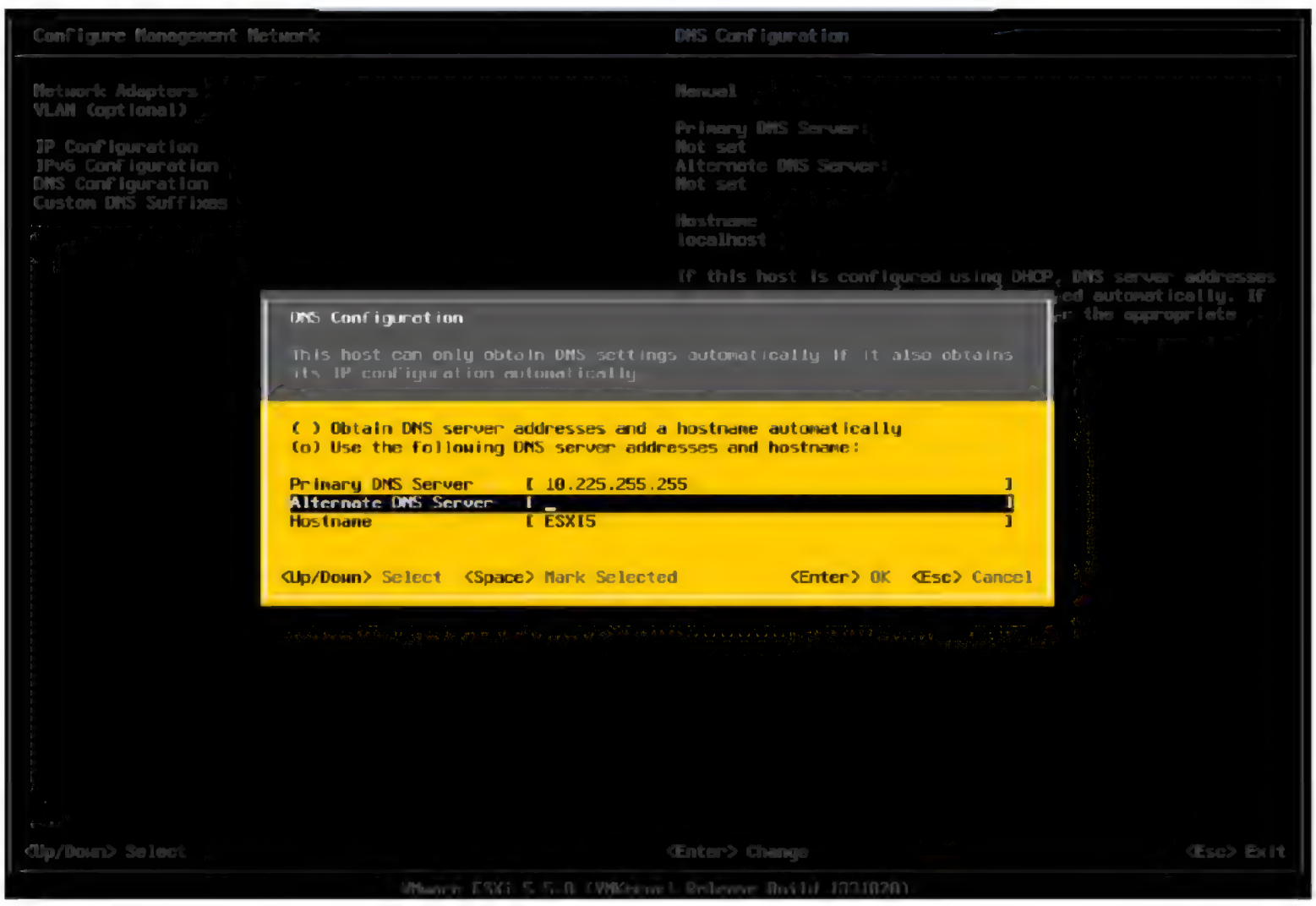


5. Select Static IP

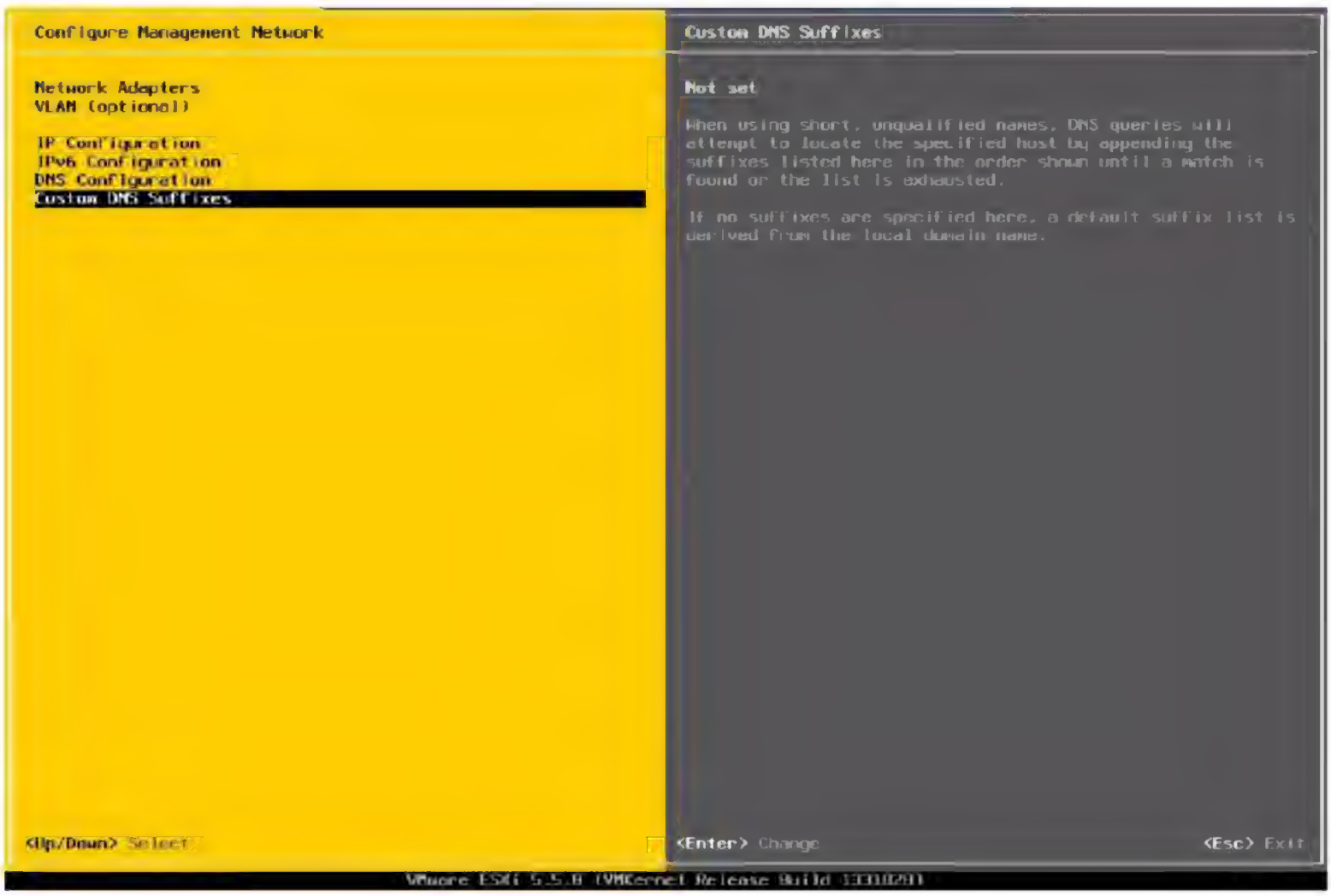
6. Enter the IP, Subnet & Default Gateway, Enter to continue



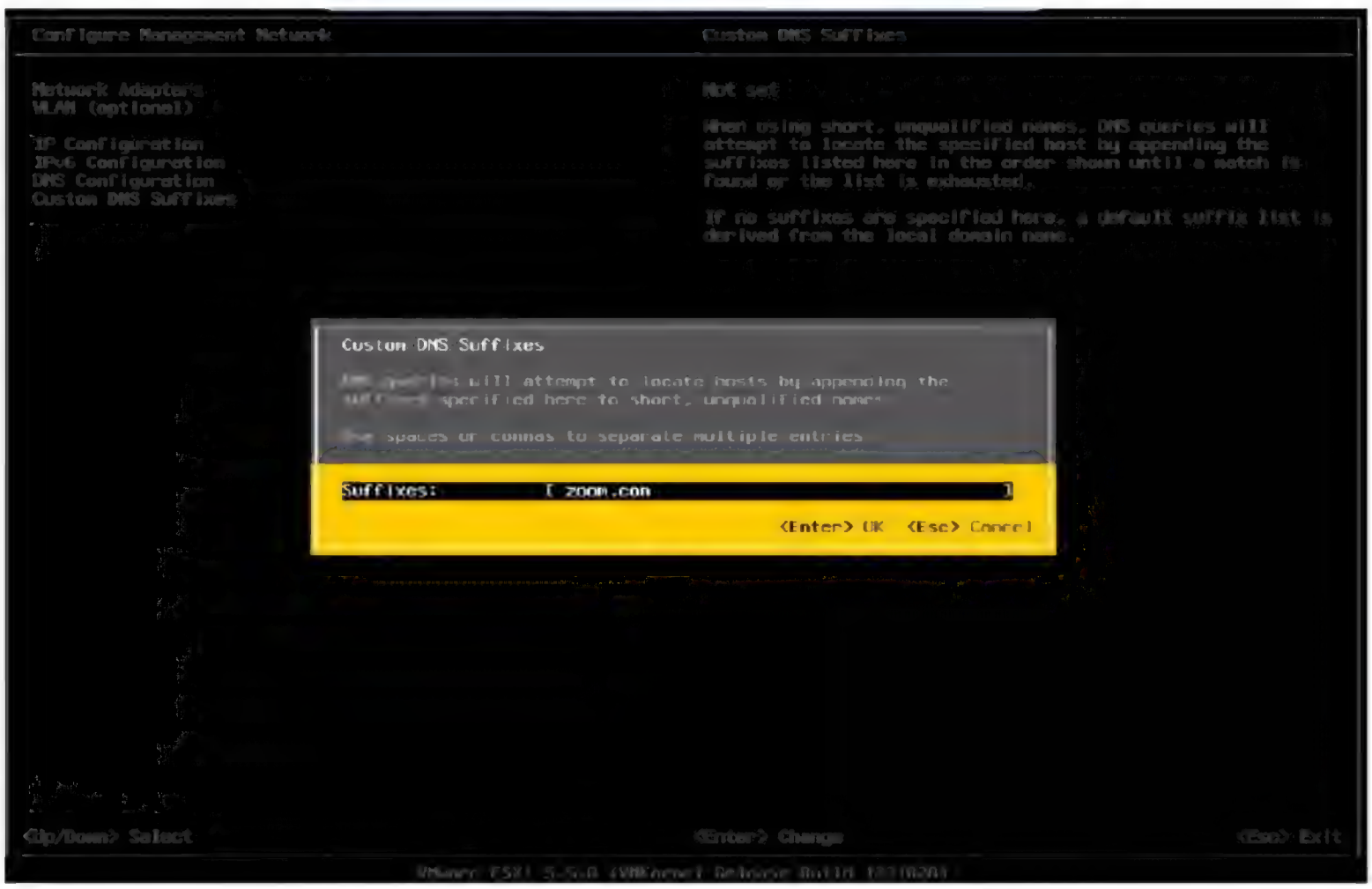
7. Drop down to DNS Configuration, Enter



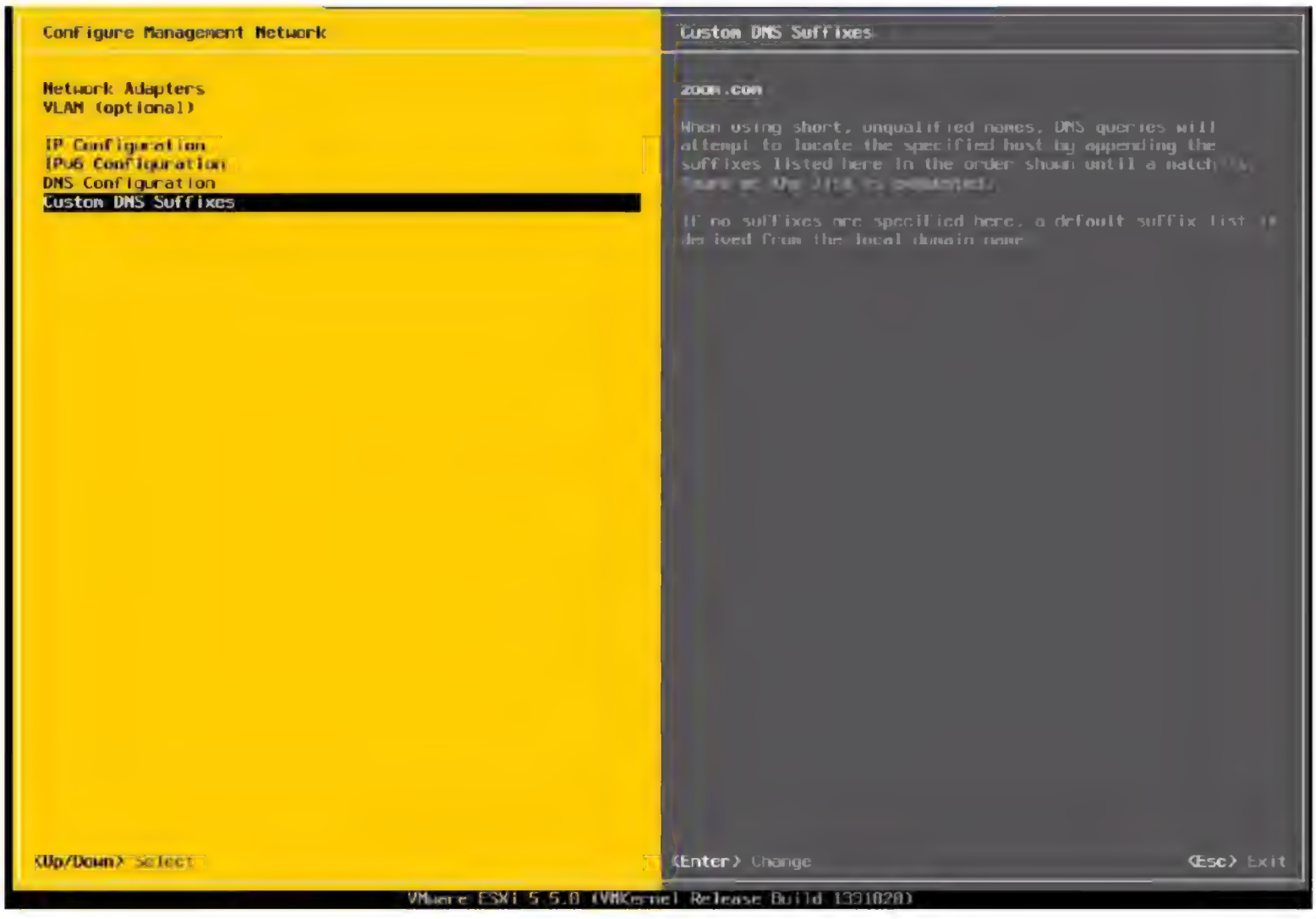
8. Enter DNS Server IP and give a Hostname, Enter to continue



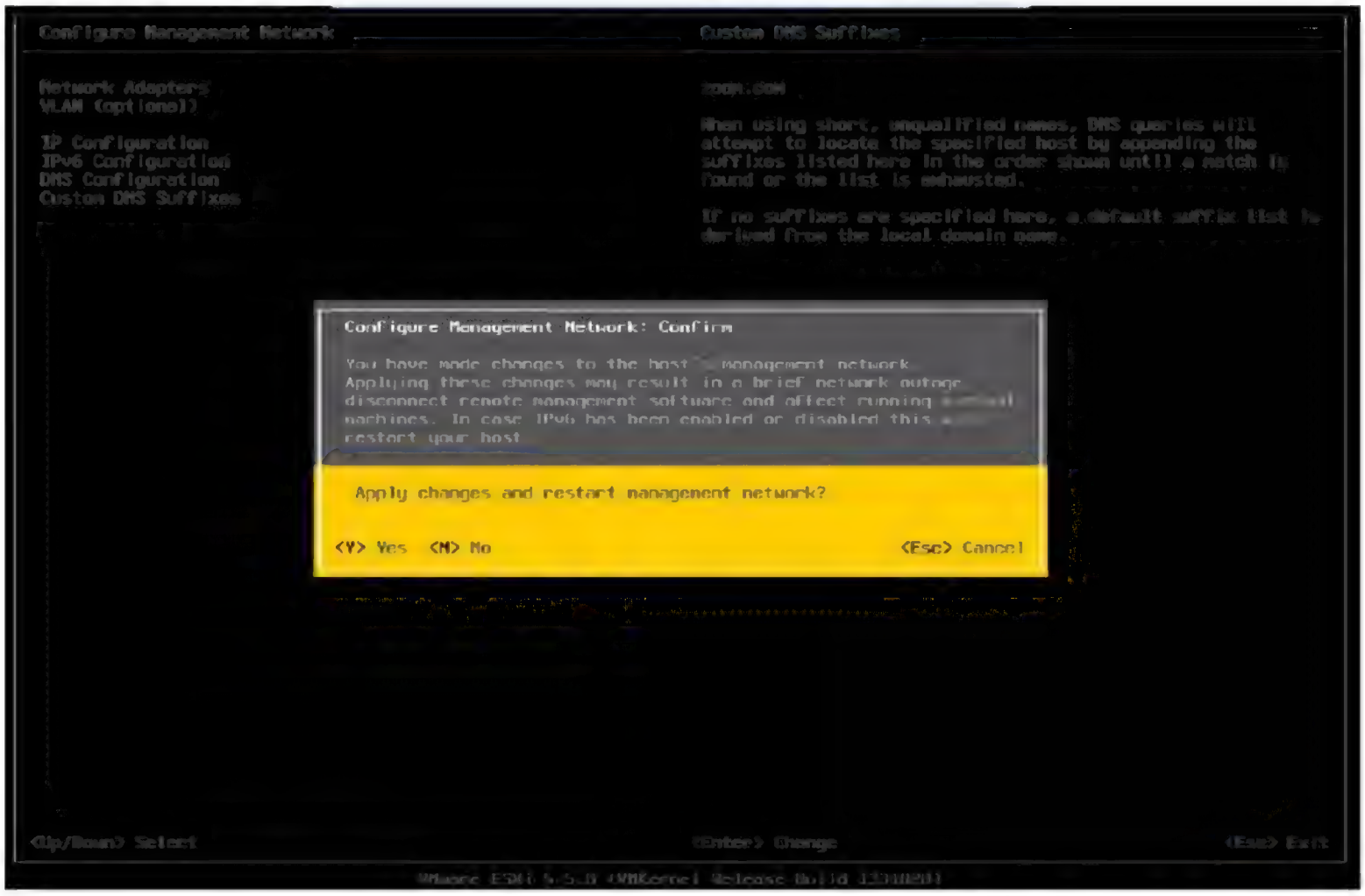
9. Dropdown to Custom DNS Suffixes, Enter



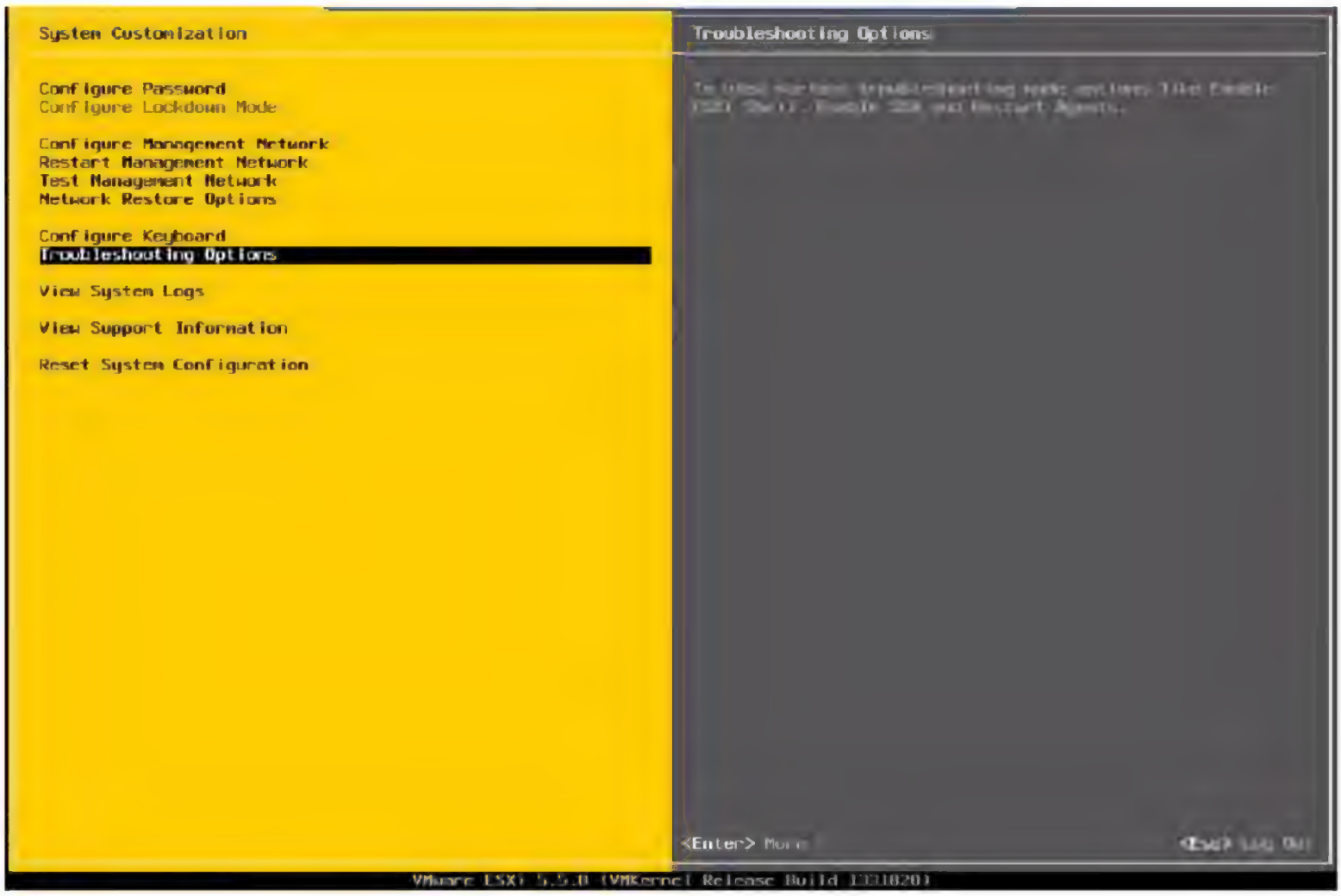
10. Enter the domain name, Enter to continue



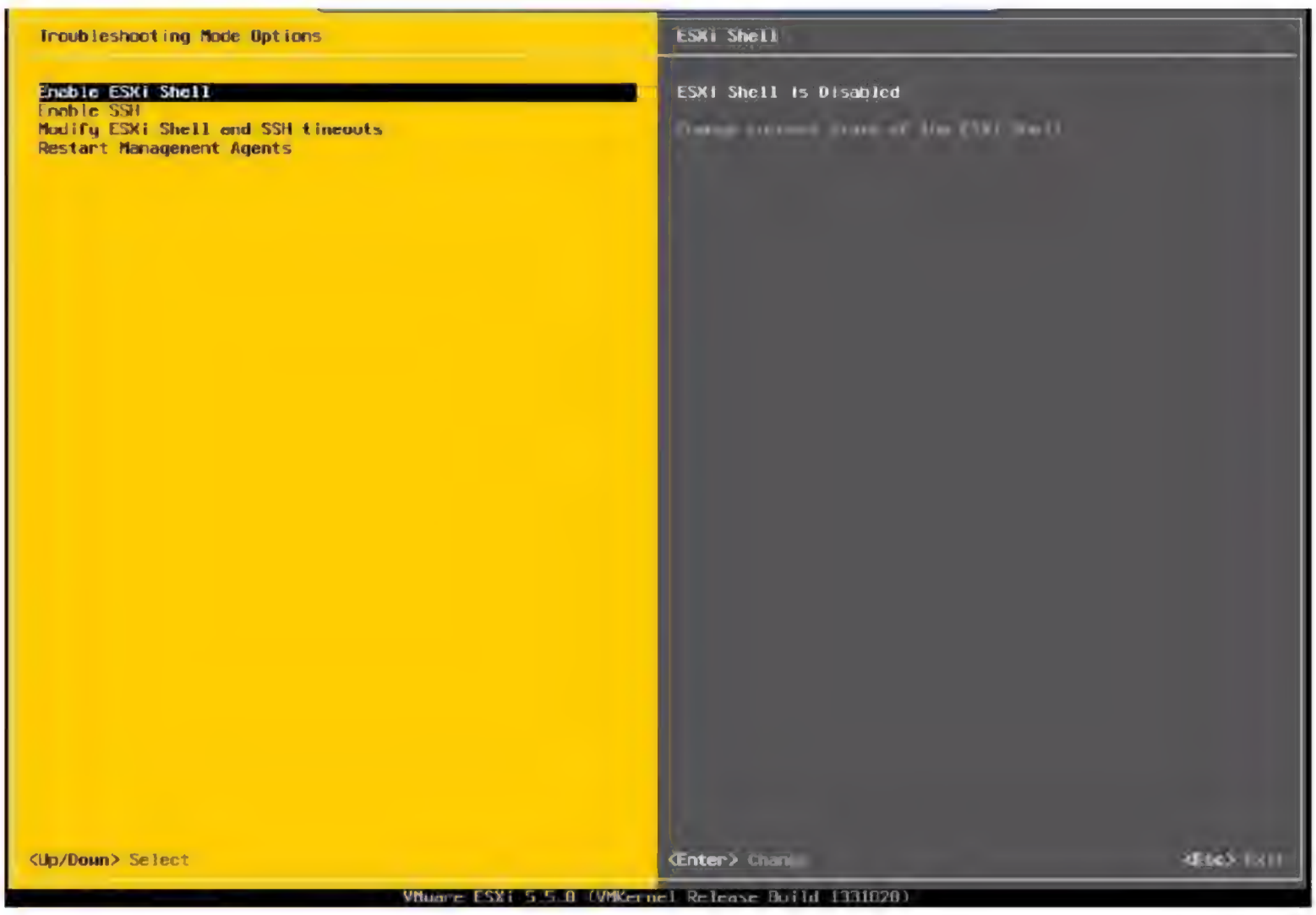
11. Press ESC to Exit



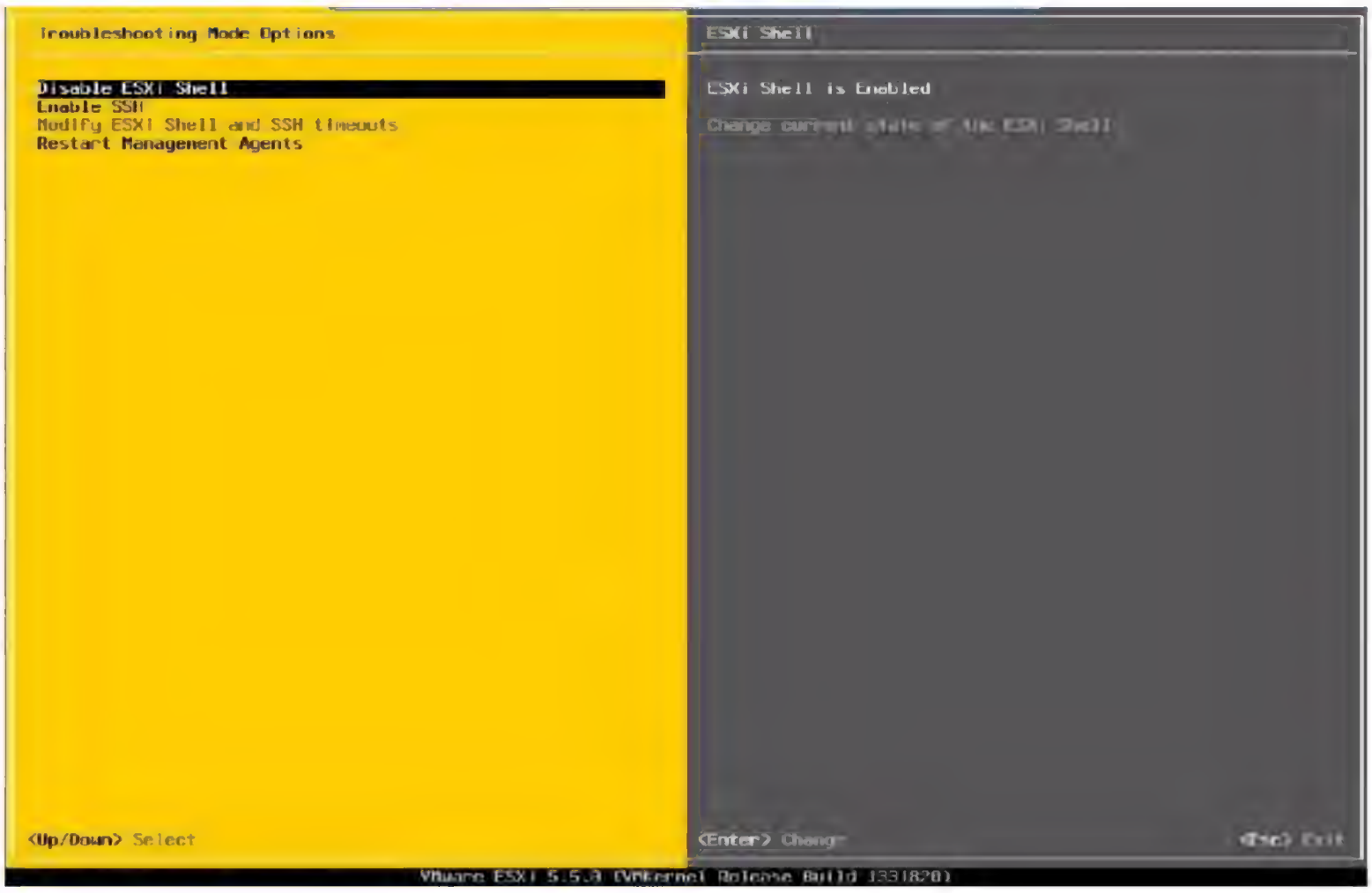
12. Press Y for changes to take effect



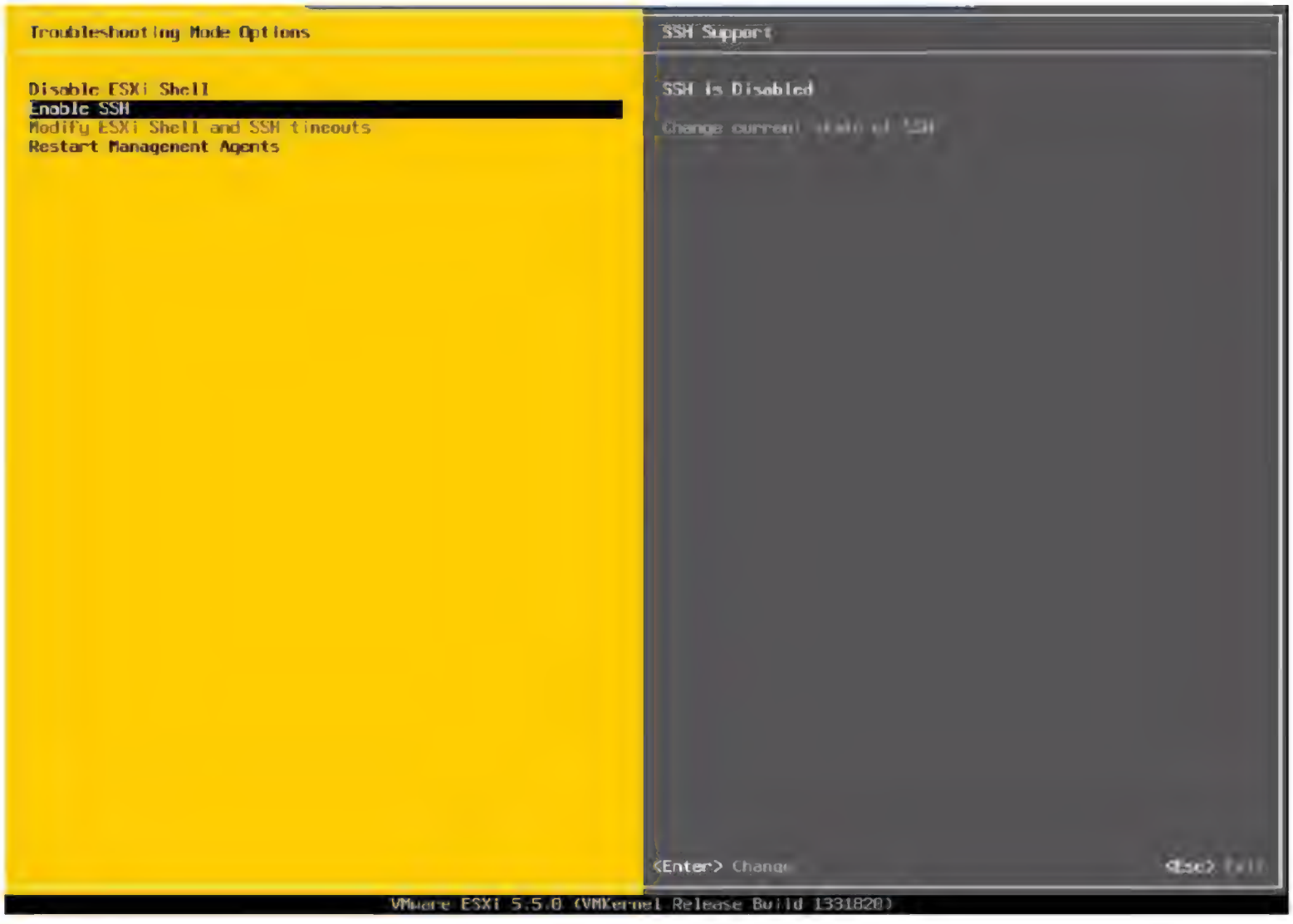
13. Drop down to Troubleshooting Options, Enter



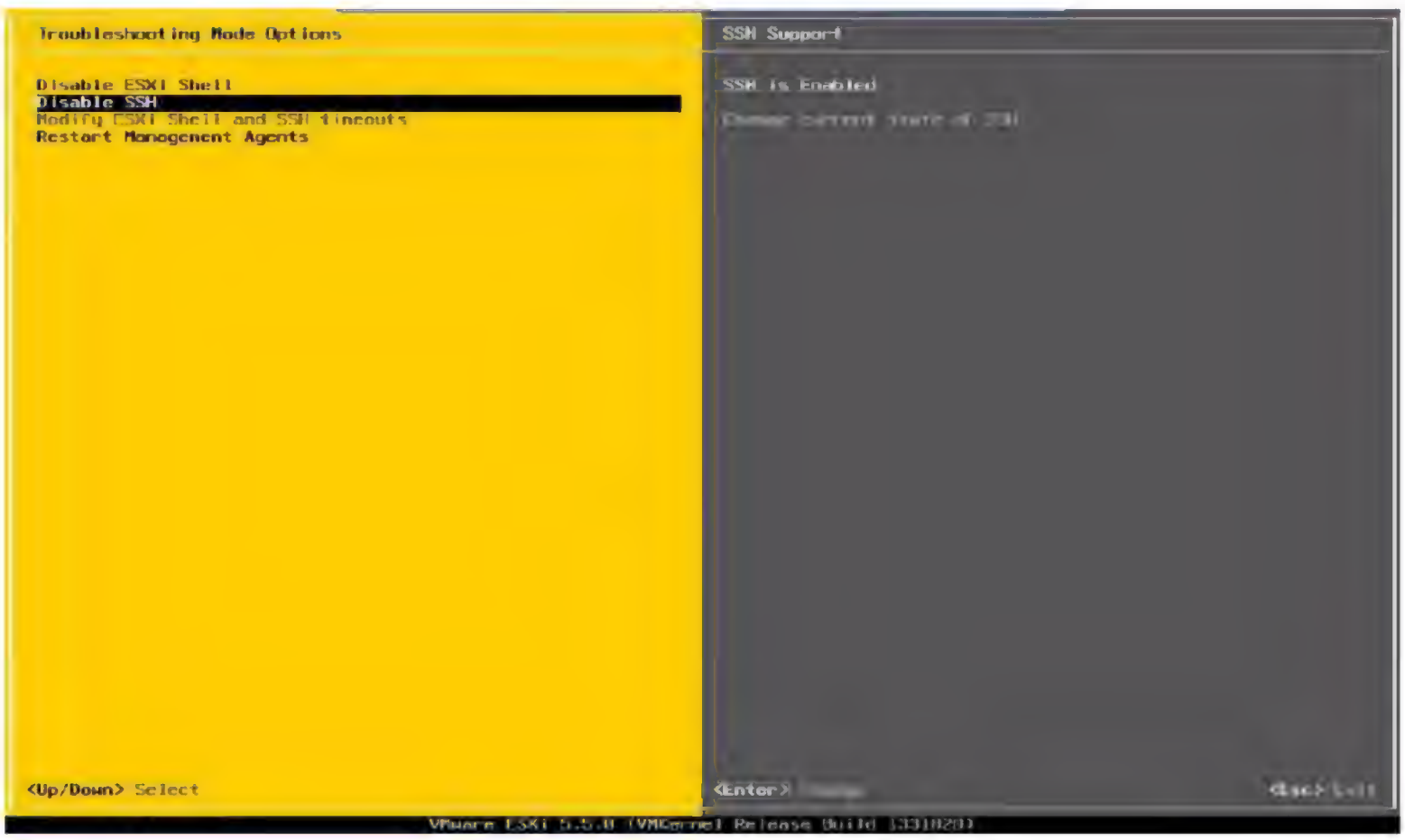
14. Enter to Enable ESXi Shell



15. Dropdown to Enable SSH

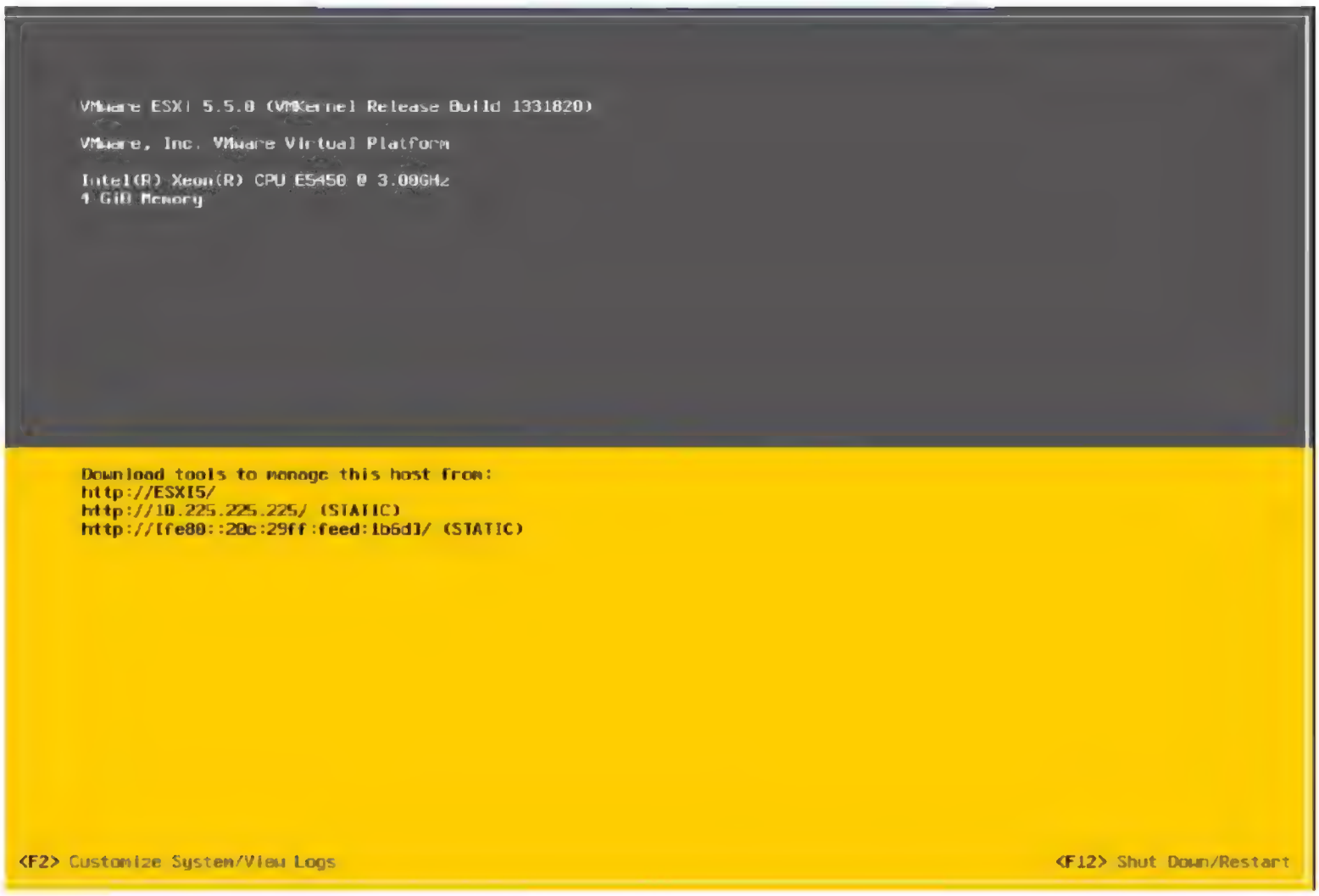


16. Enter to Enable SSH



17. ESC to exit, ESC to Logout from DCUI

Verification:



Observe:

IP Address & Hostname is configured Initial configuration of ESXi is complete.

LAB-3: LOGIN TO ESXi HOST USING vSPHERE CLIENT

Objective:

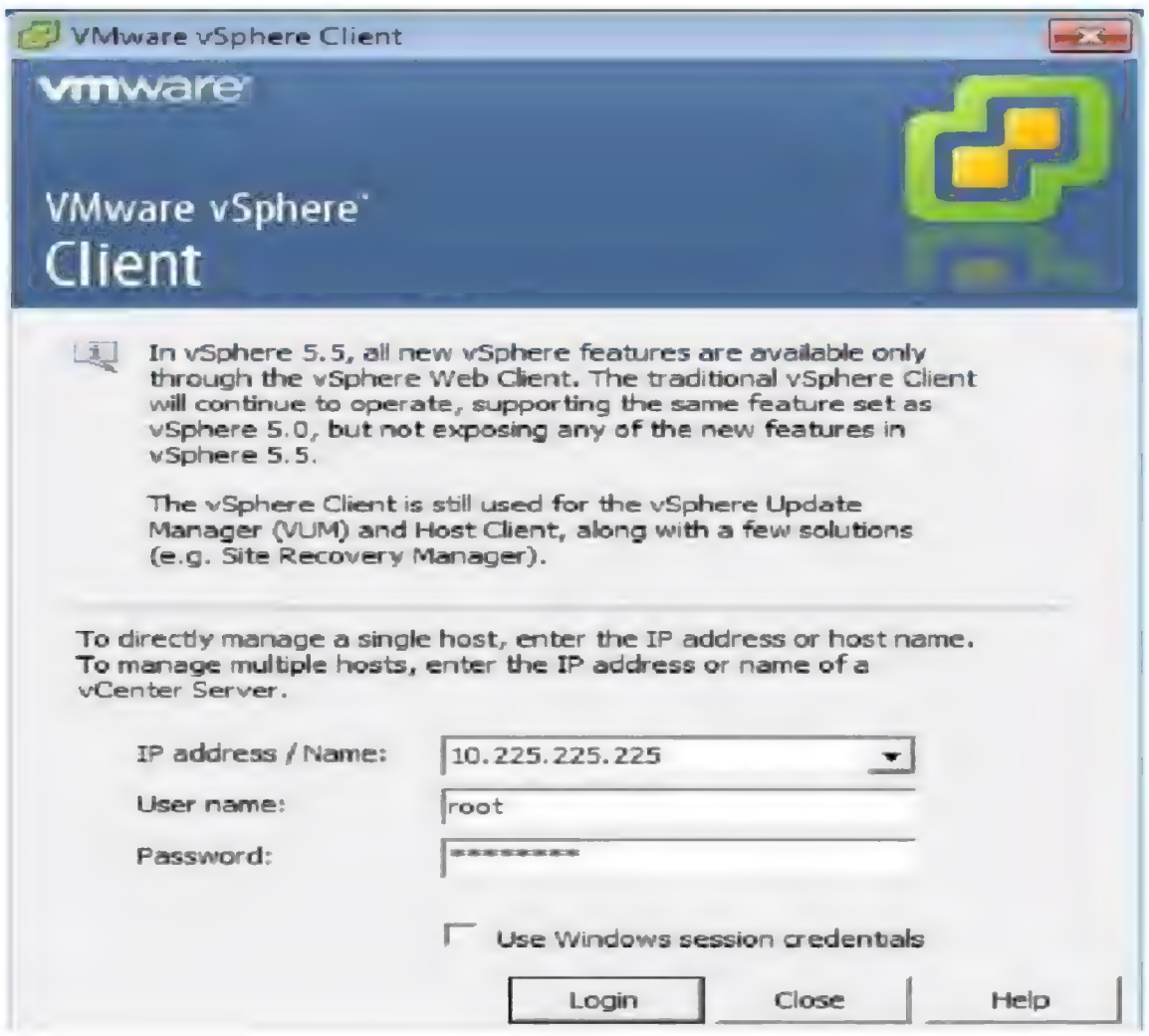
To use a vSphere client to log in to ESXi Host

Pre-requisites:

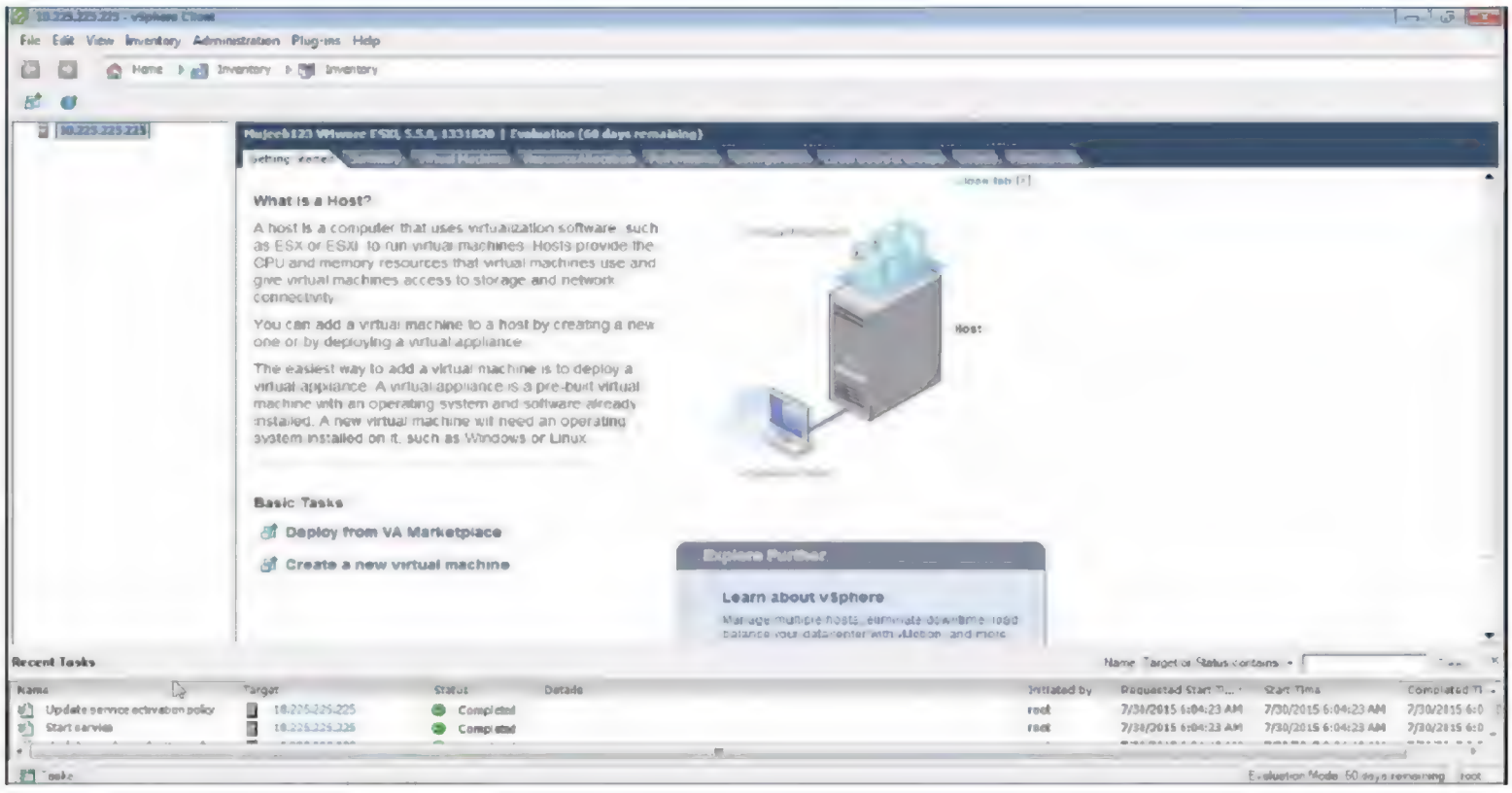
Client Machine with vSphere Client installed

Steps:

1. Launch vSphere Client on your local system



2. Enter the details of ESXi Host like IP Address/Host name and the Credentials Login



You are now connected to ESXi Host using vSphere Client.

LAB-4: VIRTUAL NETWORKING WITH VIRTUAL SWITCHES

Objective:

To configure Virtual Networking on ESXi Host

Tasks:

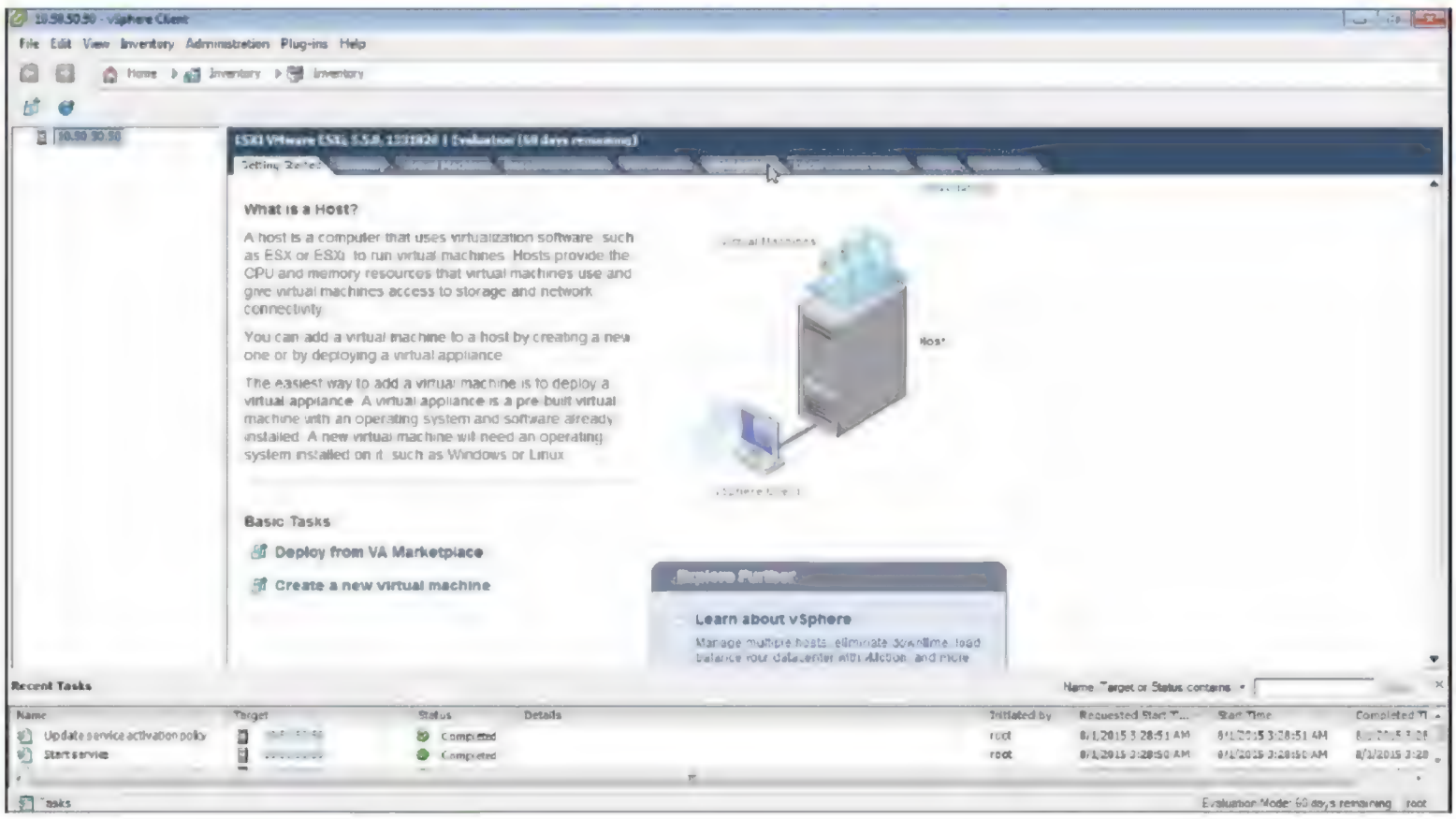
- Creating a Virtual Machine Port Group
- Creating a VMkernel port
- Adding additional NIC to virtual switch for redundancy

Creating a Virtual Machine Port Group

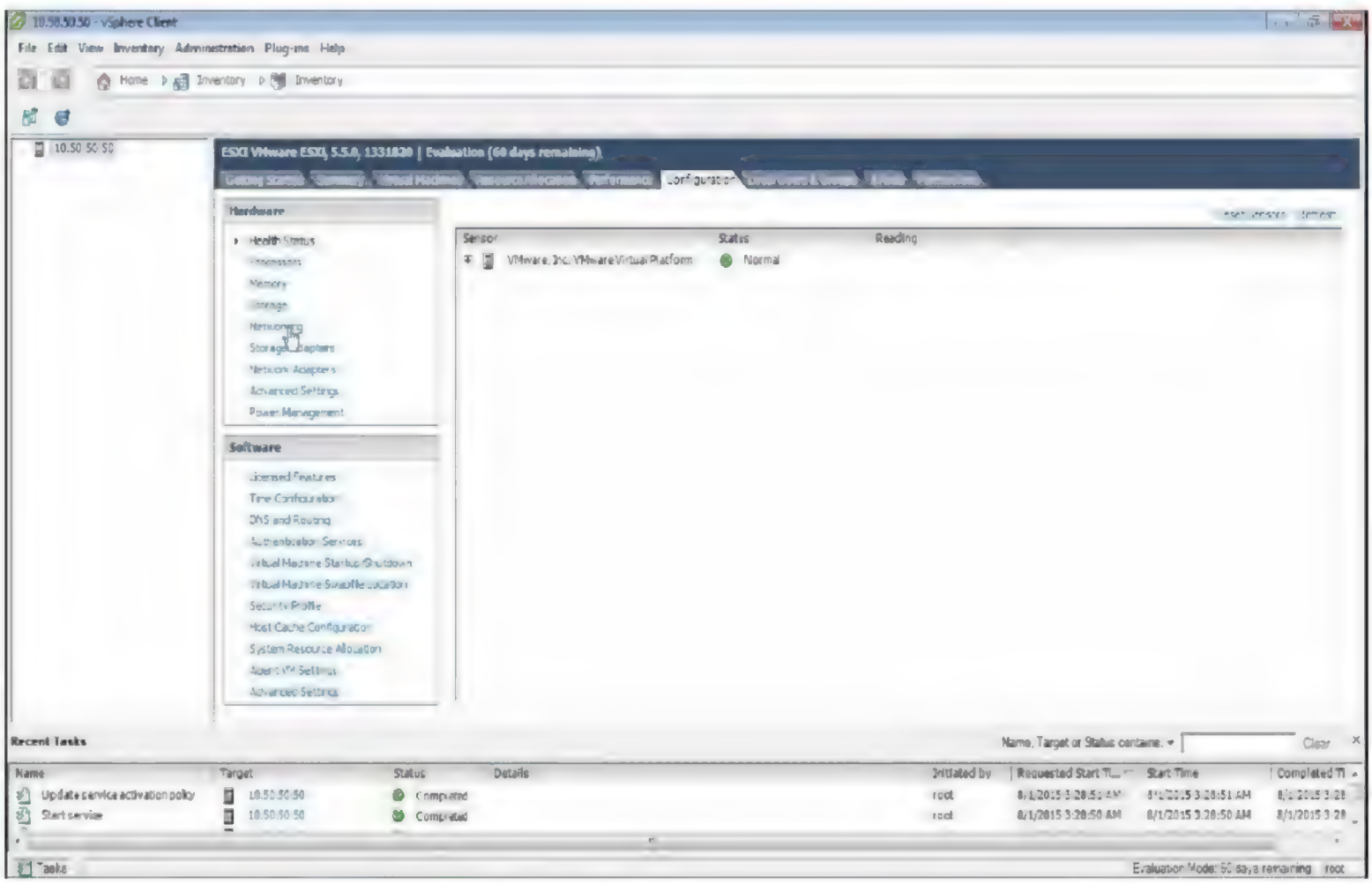
Steps:

1. Launch vSphere Client on your system

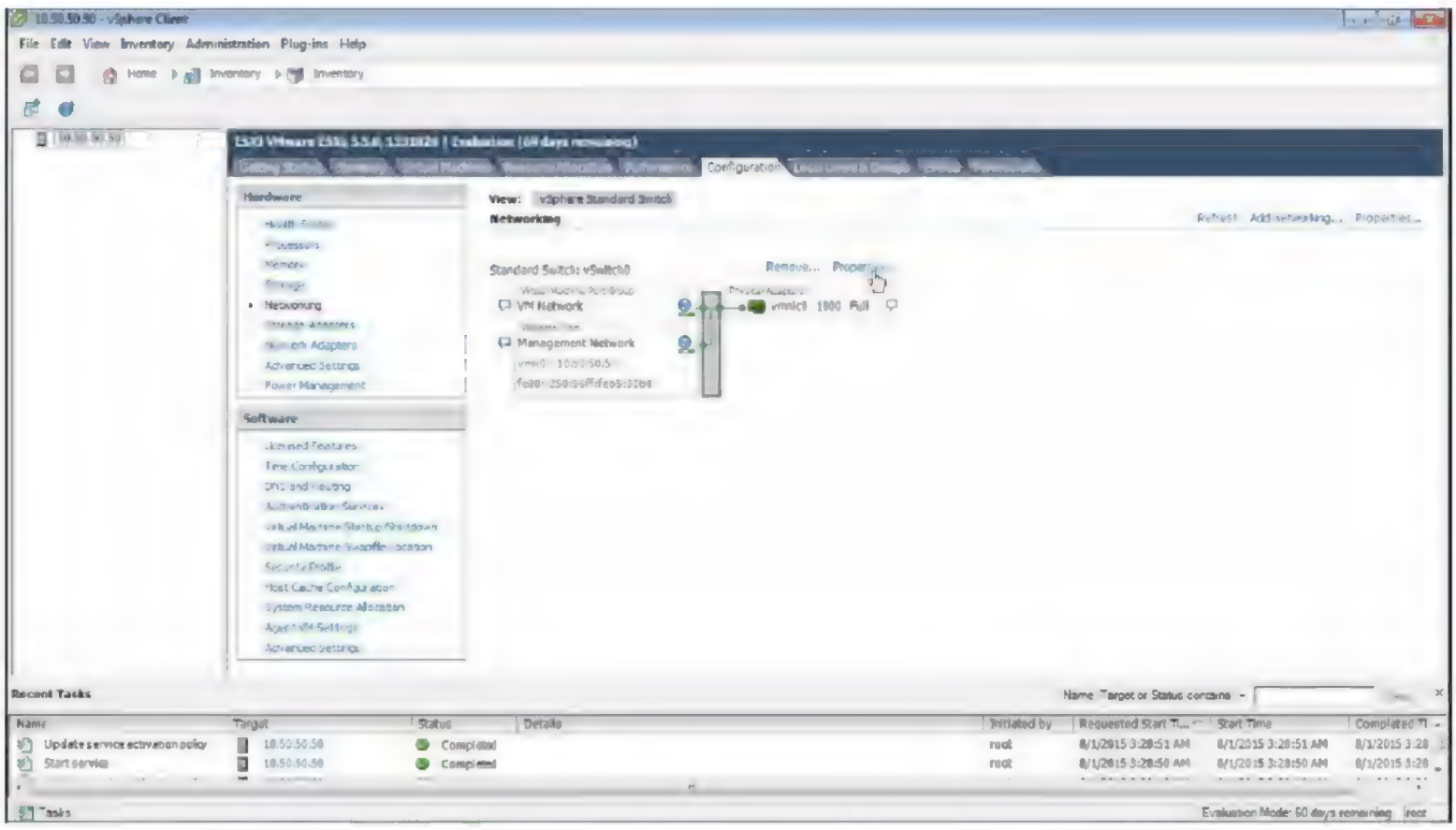
2. Enter the IP Address/Host name of ESXi Host and the credentials, Login



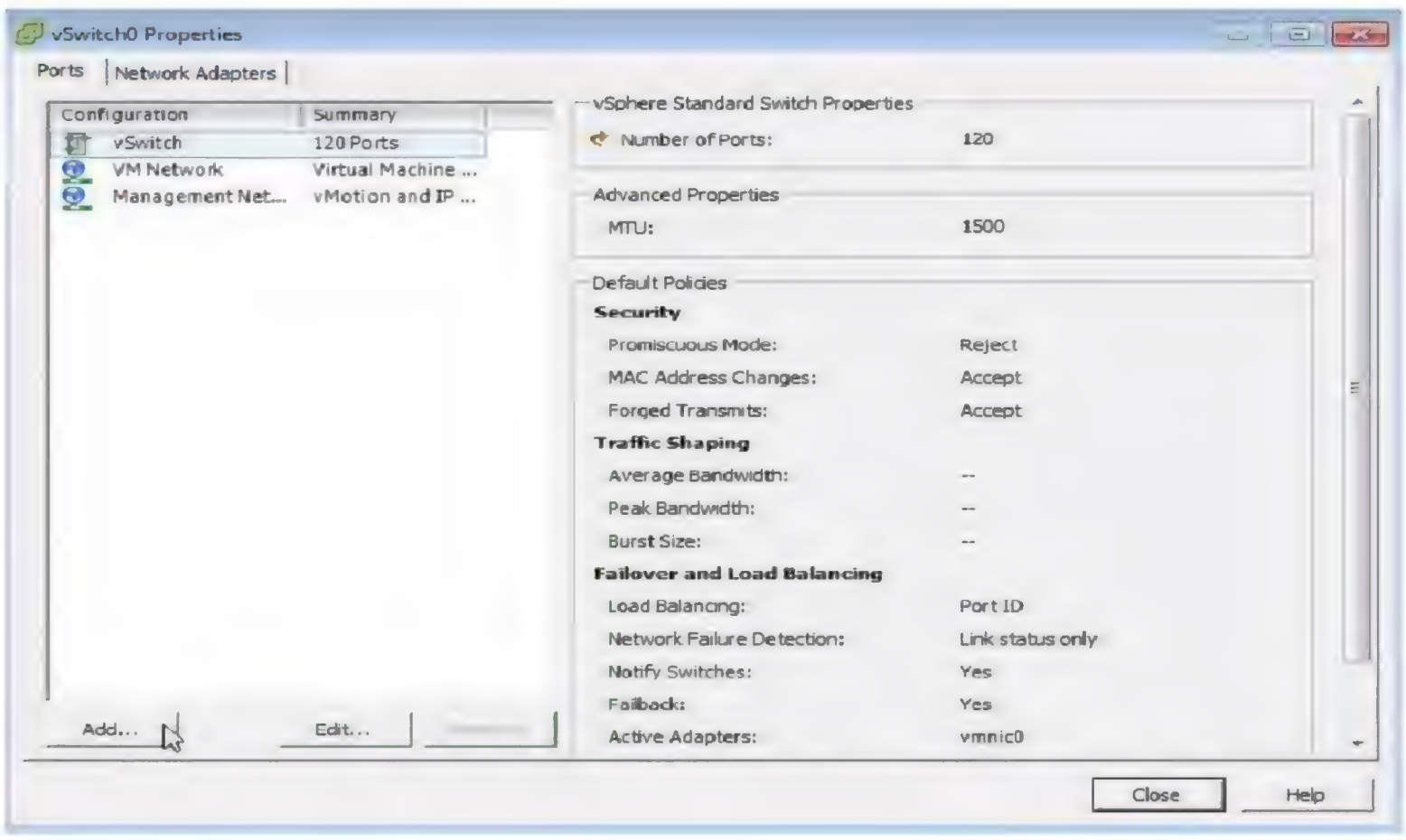
3. Click on Configuration Tab



4. Click on Networking under Hardware Section

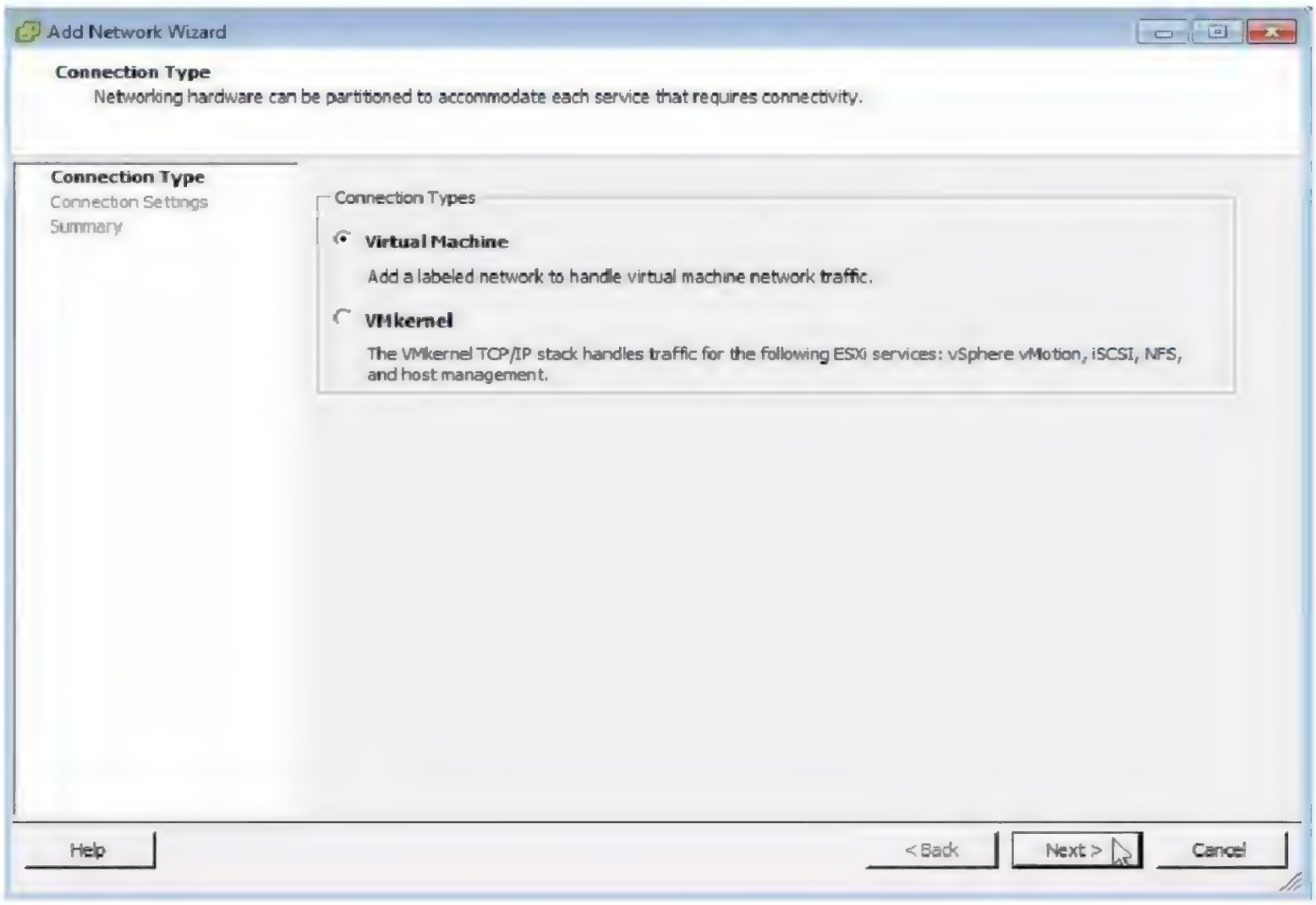


5. Click on properties of vSwitch0

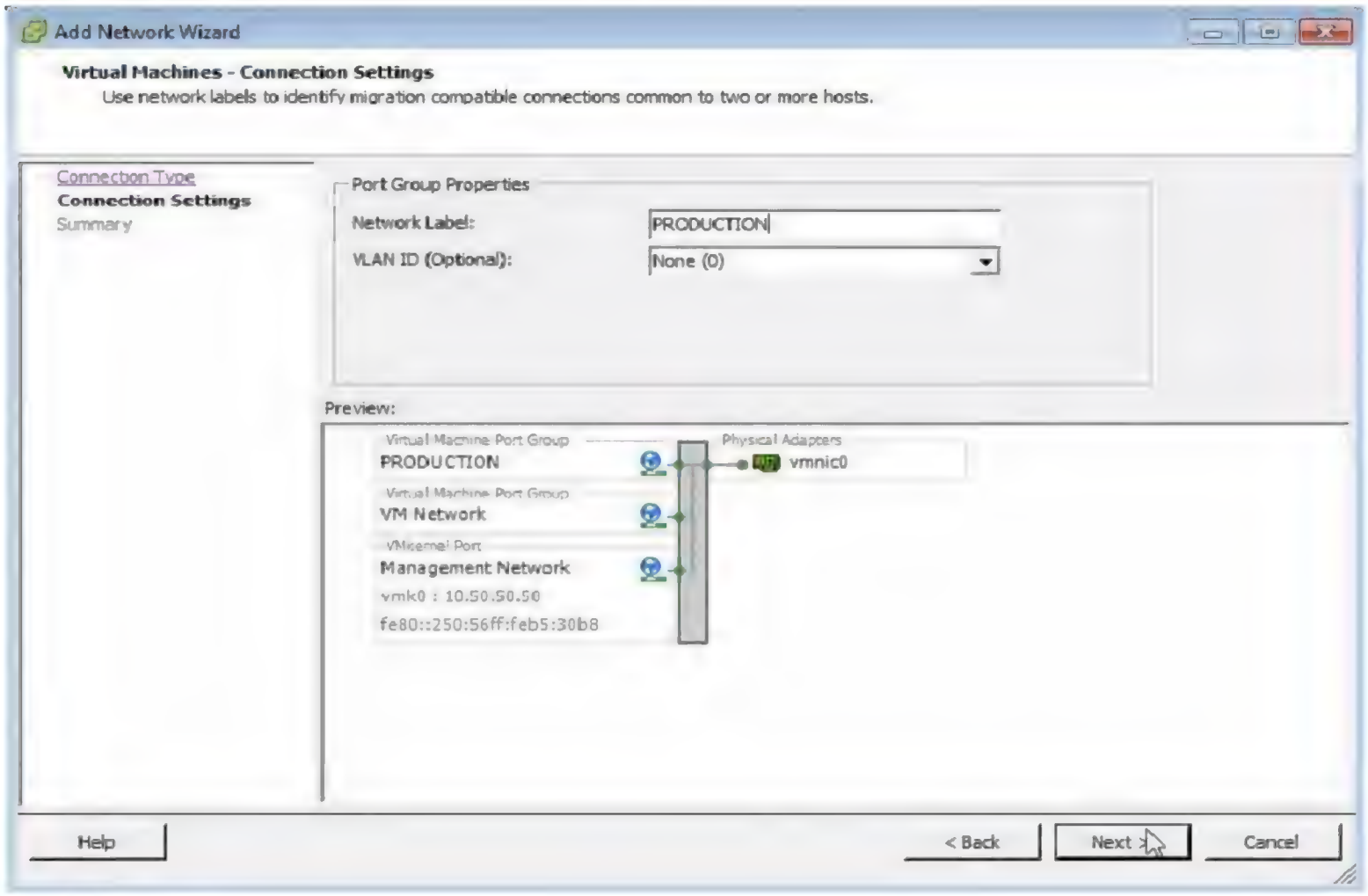


6. Click Add

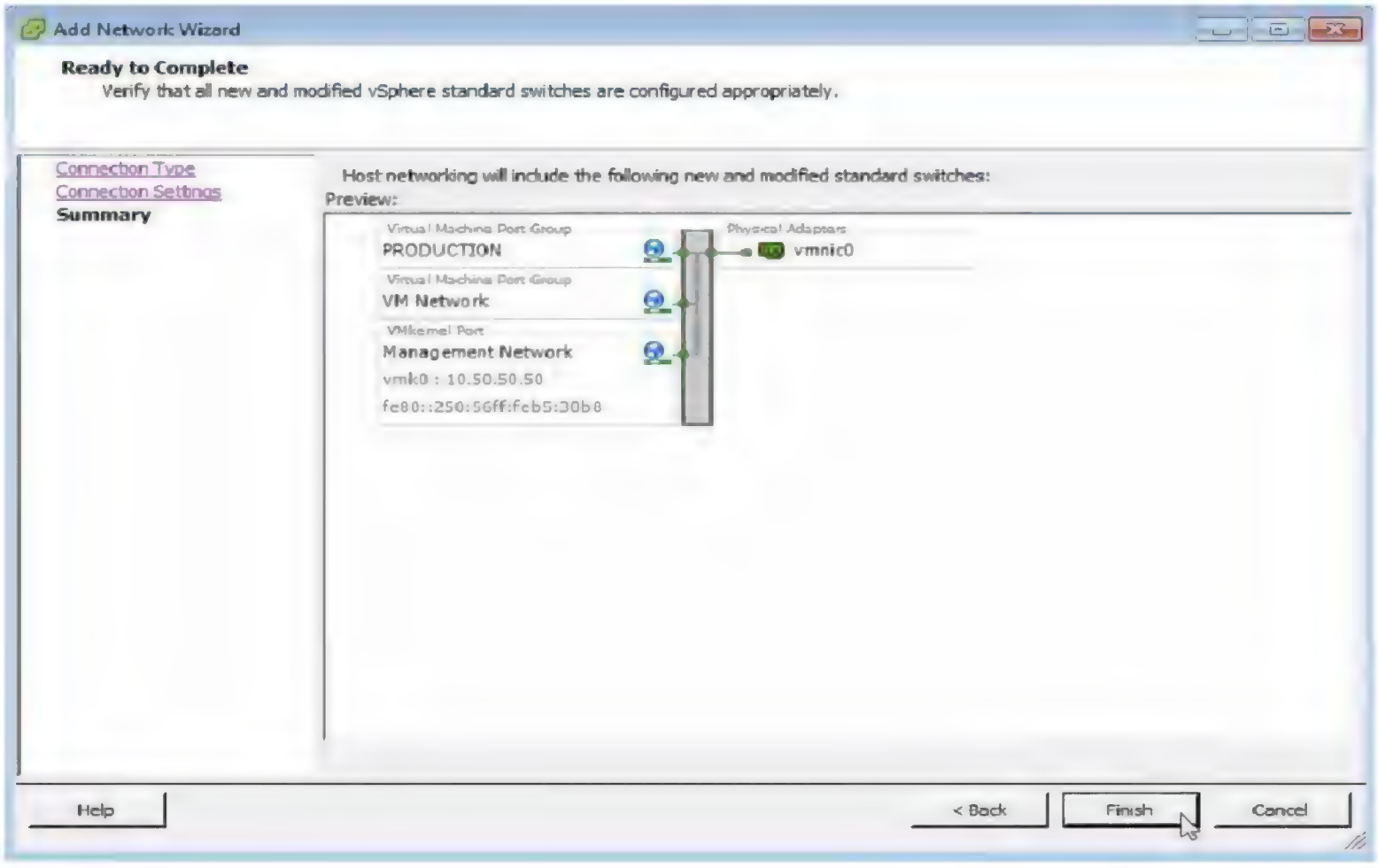
7. Select Virtual Machine, Next



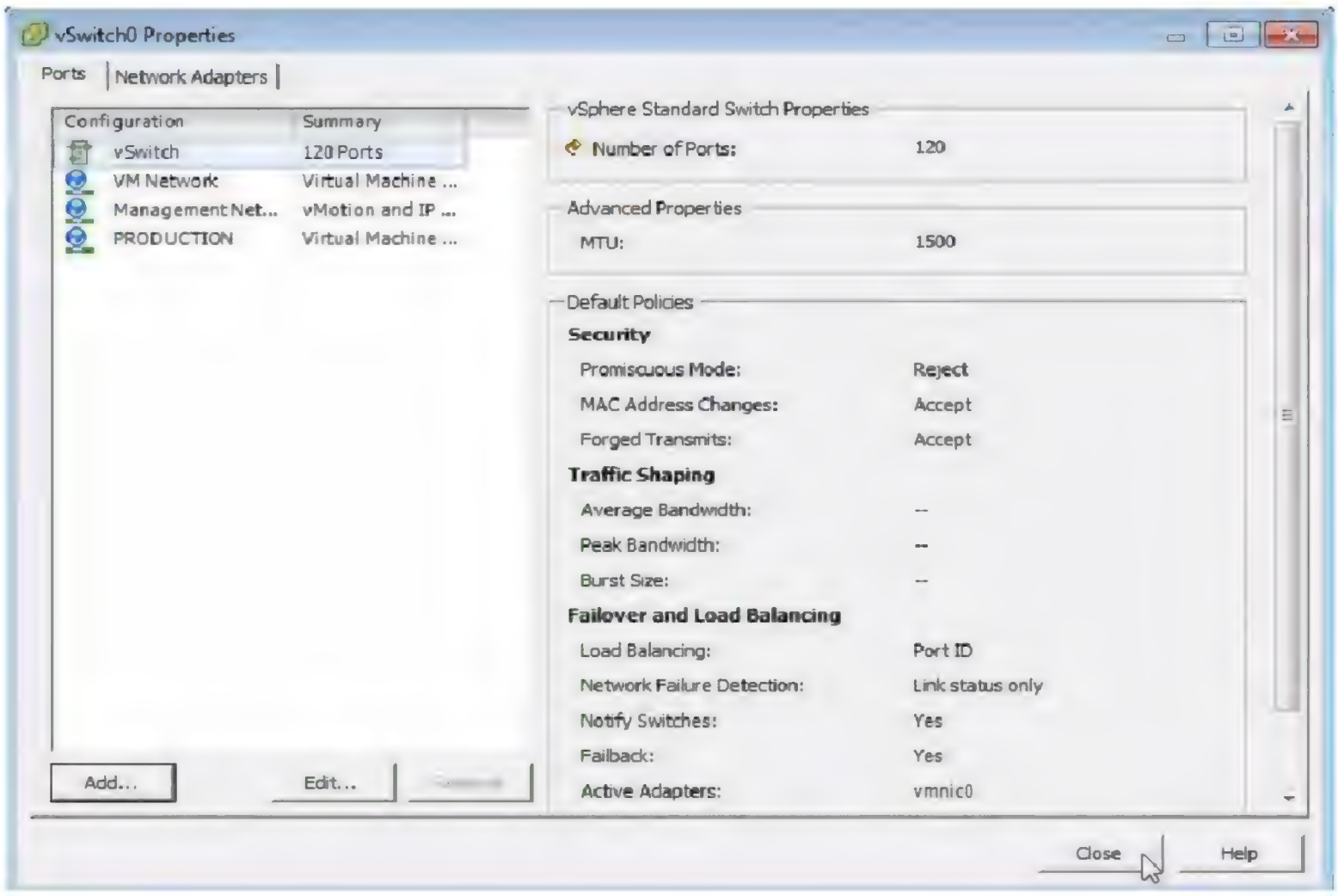
8. Enter a Network Label for example PRODUCTION, Next to continue



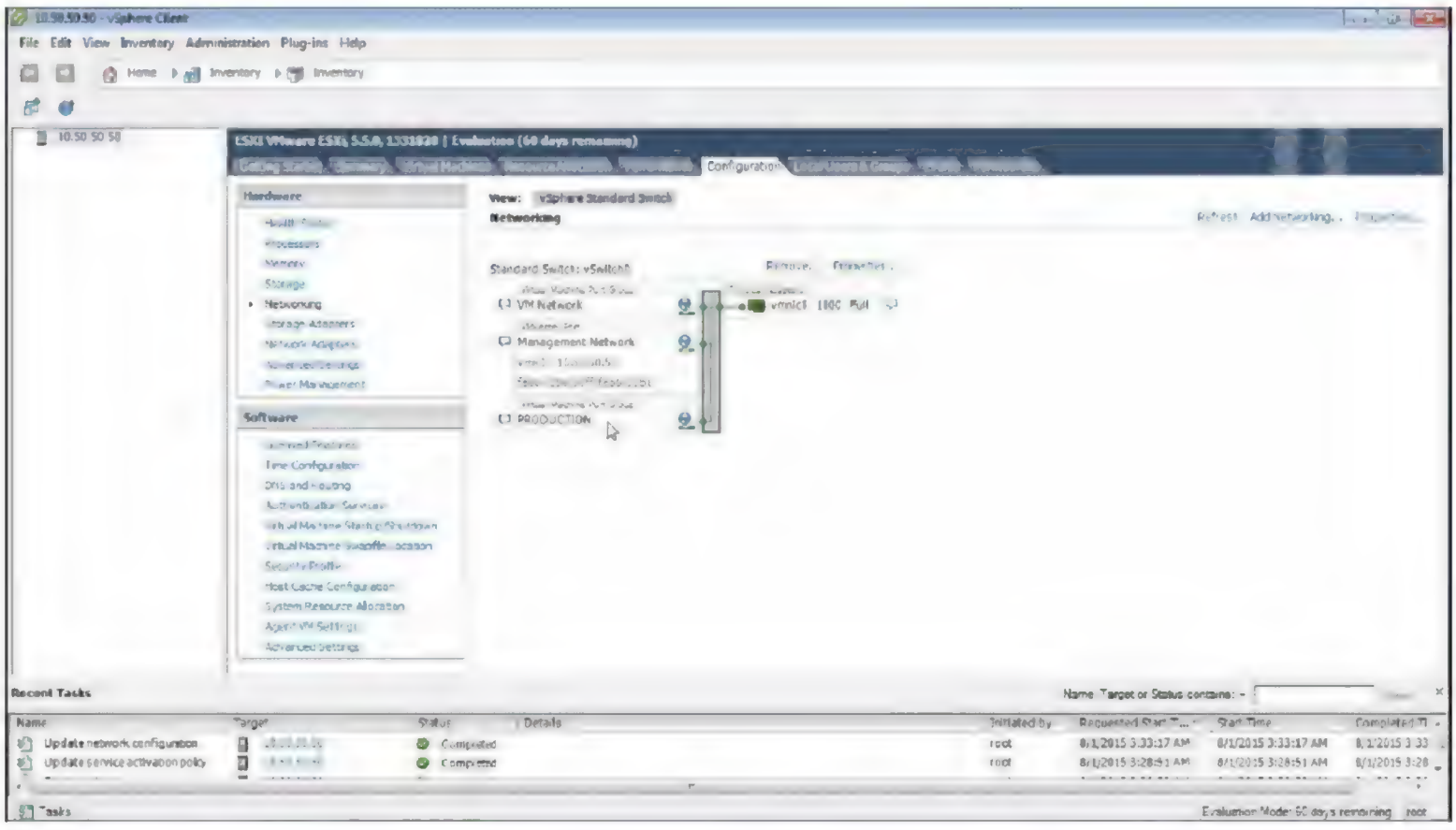
9. Finish to continue


Add Network Wizard
Ready to Complete
Verify that all new and modified vSphere standard switches are configured appropriately.
Connection Type
Connection Settings
Summary
Host networking will include the following new and modified standard switches:
Preview:
Virtual Machine Port Group
PRODUCTION
Physical Adapters
vmnic0
Virtual Machine Port Group
VM Network
VMkernel Port
Management Network
vmk0 : 10.50.50.50
fe80::250:56ff:feb5:30b8
Help
< Back
Finish
Cancel

10. Close


vSwitch0 Properties
Ports
Network Adapters
Configuration
Summary
vSwitch
120 Ports
VM Network
Virtual Machine ...
Management Net...
vMotion and IP ...
PRODUCTION
Virtual Machine ...
vSphere Standard Switch Properties
Number of Ports:
120
Advanced Properties
MTU:
1500
Default Policies
Security
Promiscuous Mode:
Reject
MAC Address Changes:
Accept
Forged Transmits:
Accept
Traffic Shaping
Average Bandwidth:
--
Peak Bandwidth:
--
Burst Size:
--
Failover and Load Balancing
Load Balancing:
Port ID
Network Failure Detection:
Link status only
Notify Switches:
Yes
Failback:
Yes
Active Adapters:
vmnic0
Add...
Edit...
Close
Help

Verification:

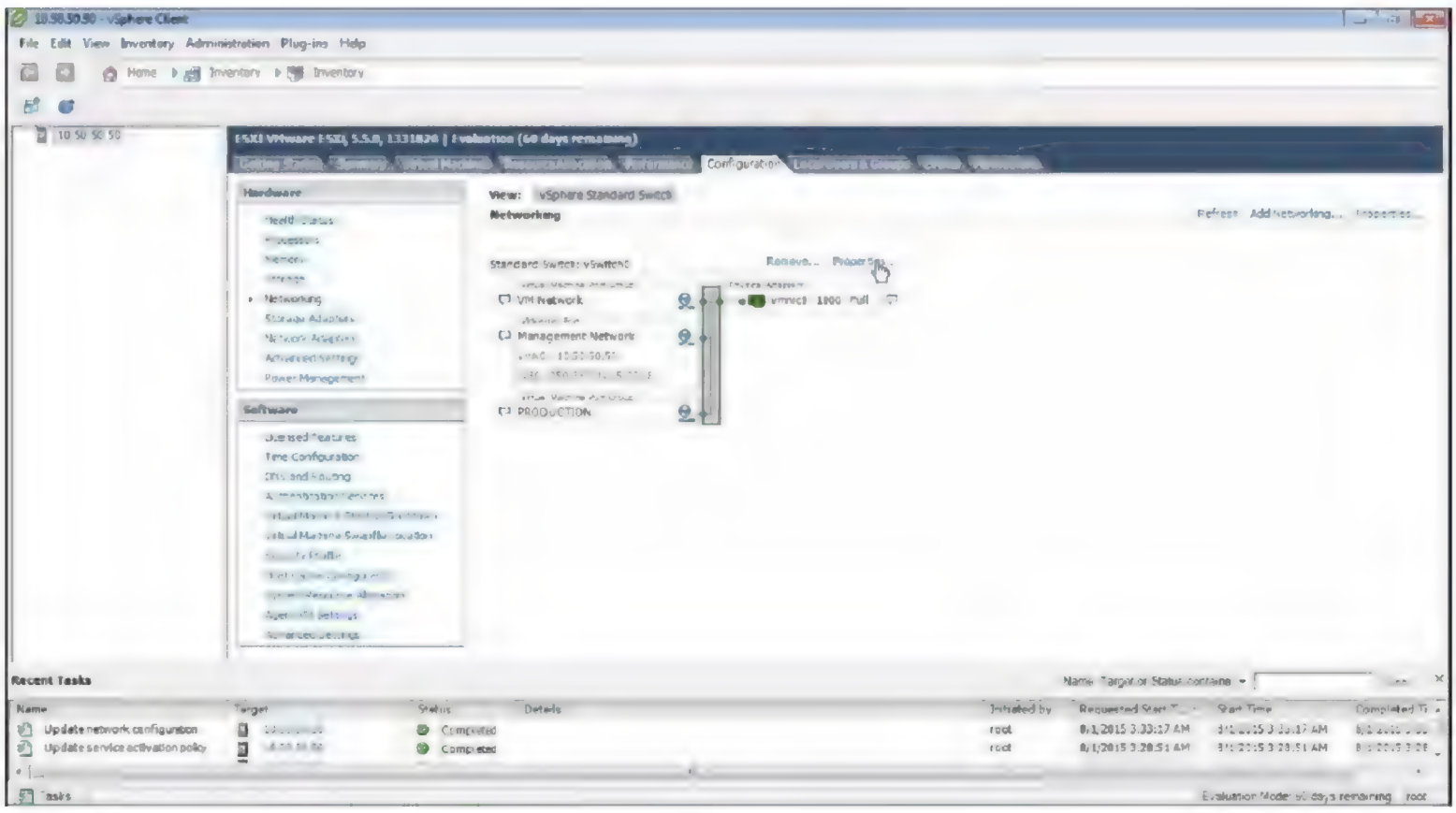


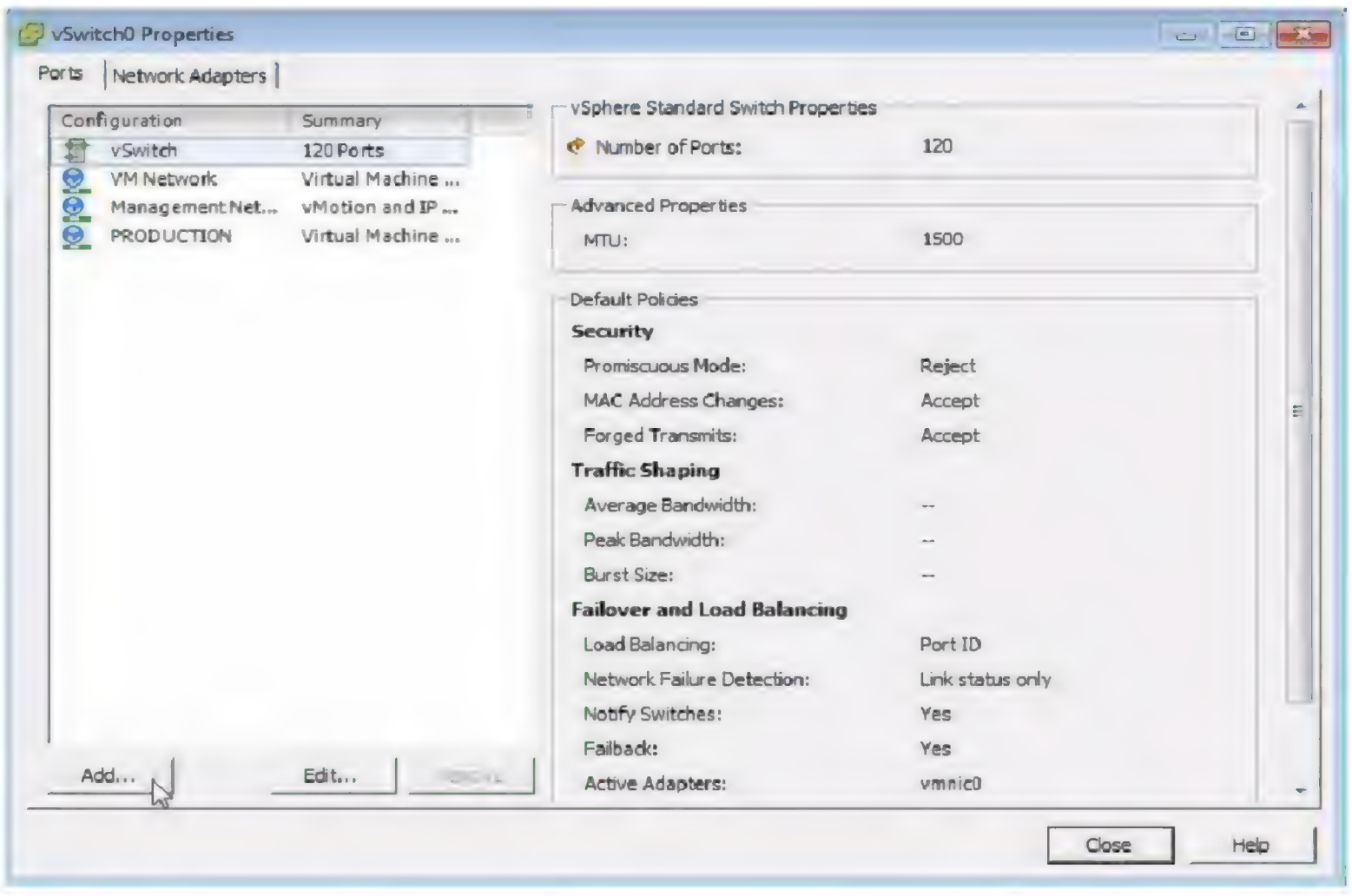
Observe that a new virtual machine port group with the label PRODUCTION is created.

Creating a VMkernel port for vMotion

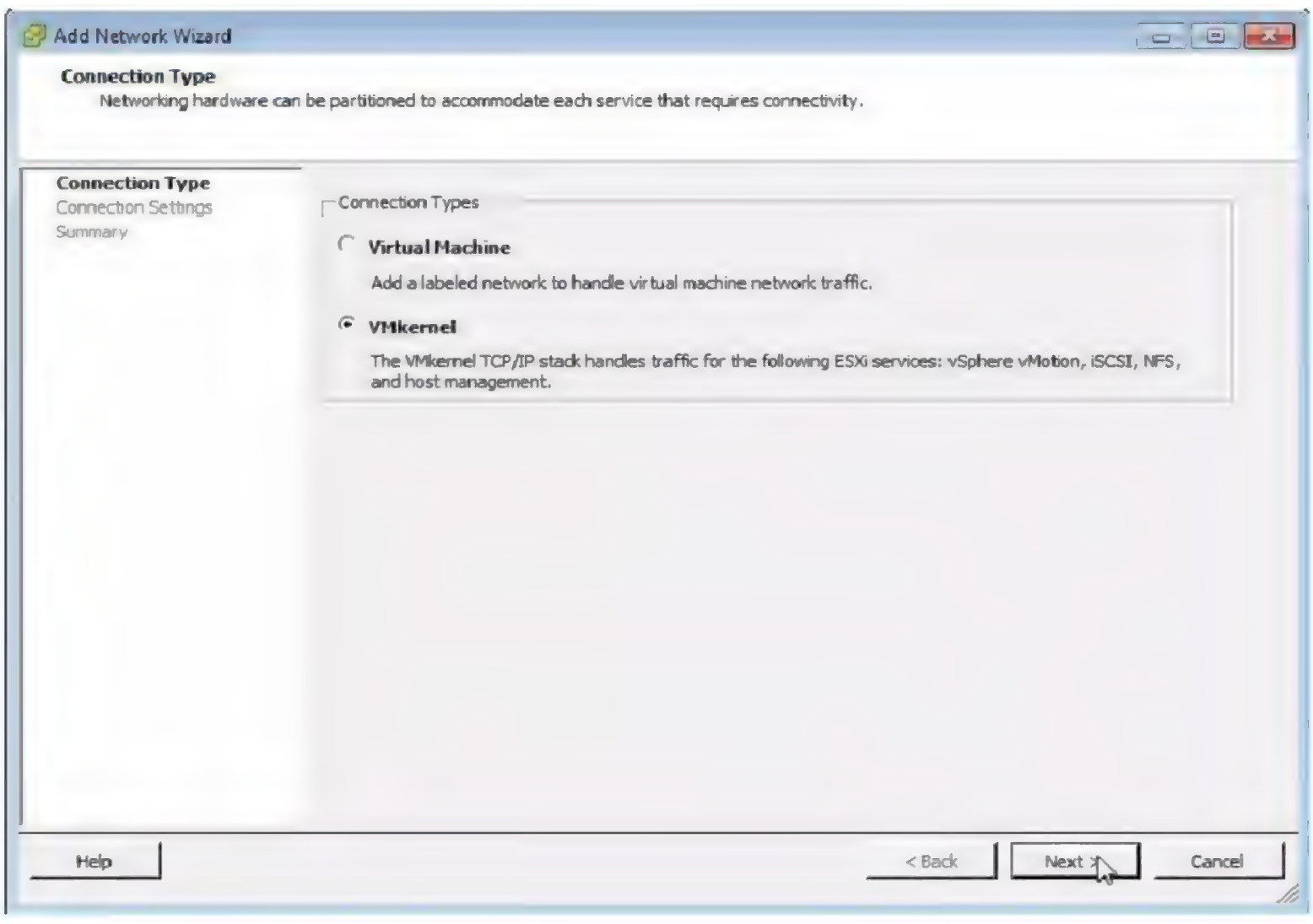
Steps:

1. Click on properties of vSwitch0

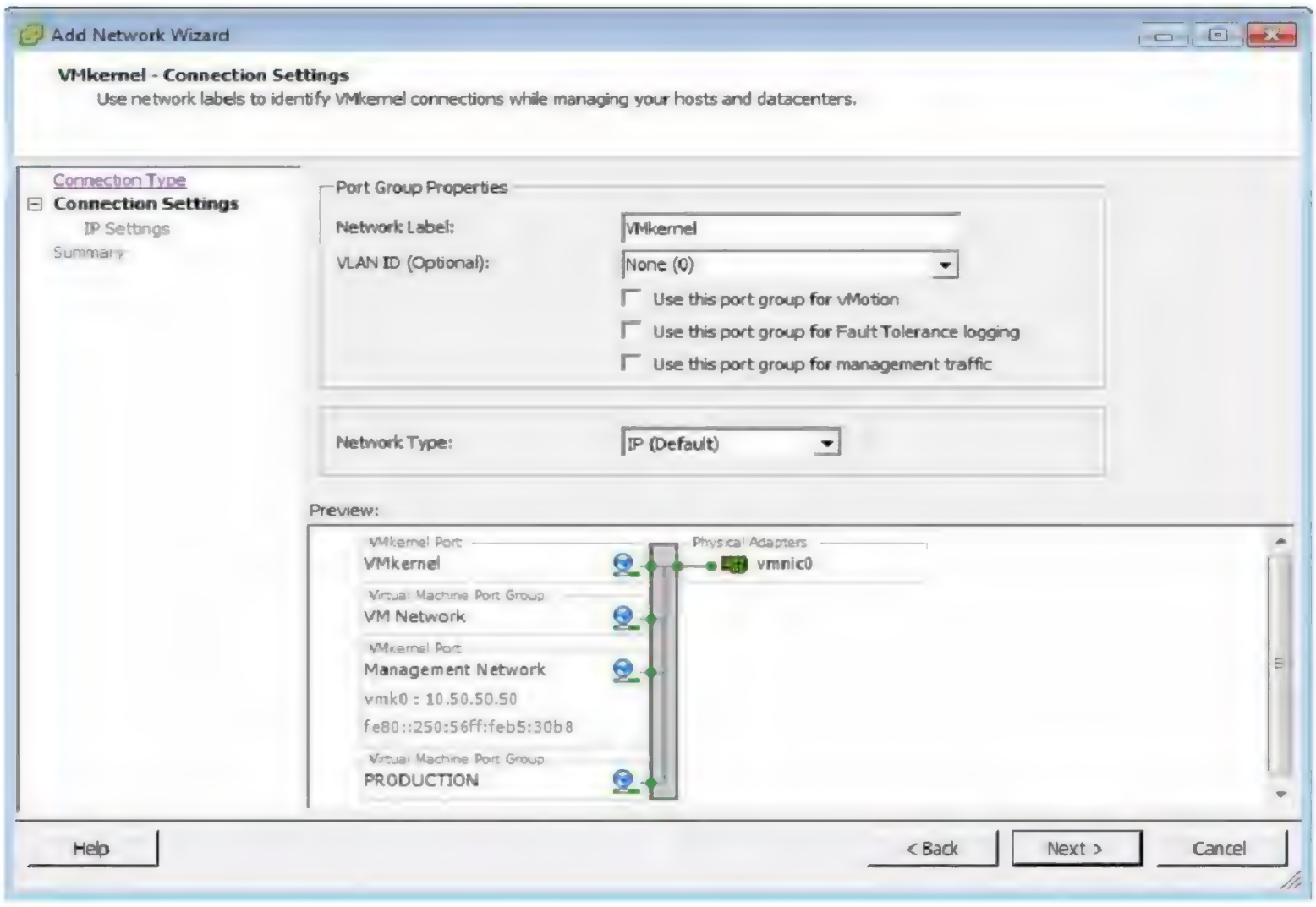




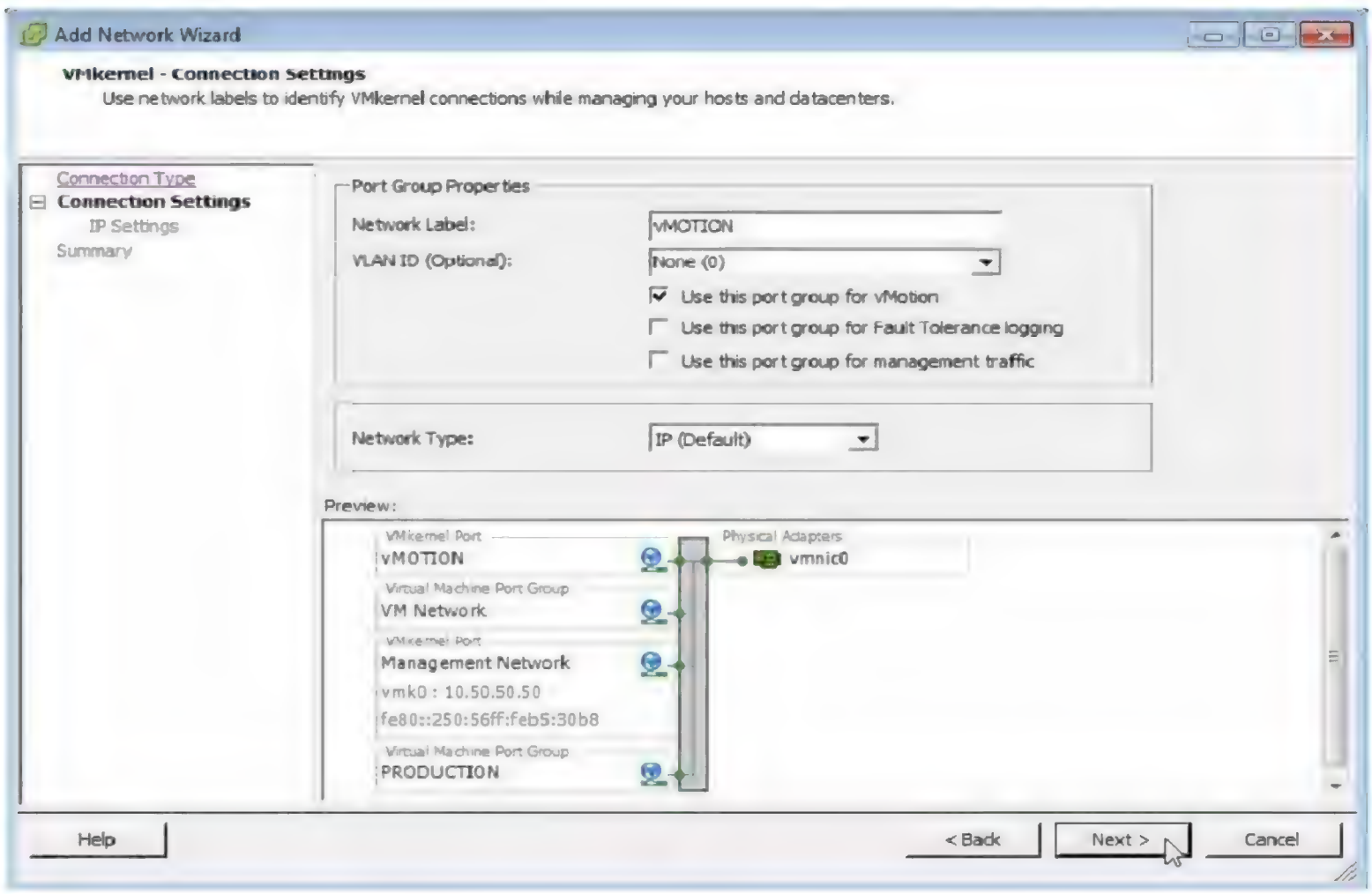
2. Click Add



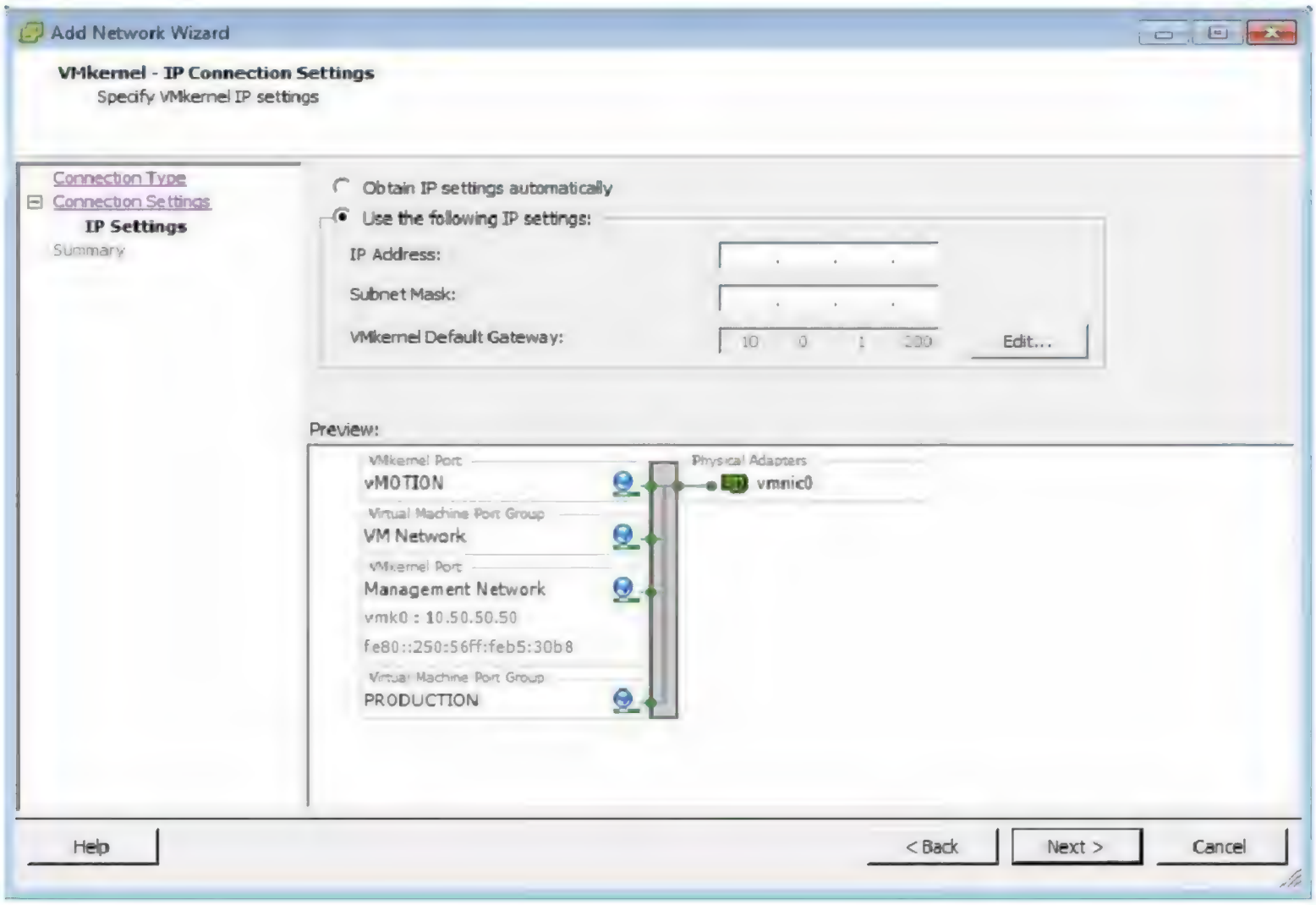
3. Select VMkernel, Next to continue



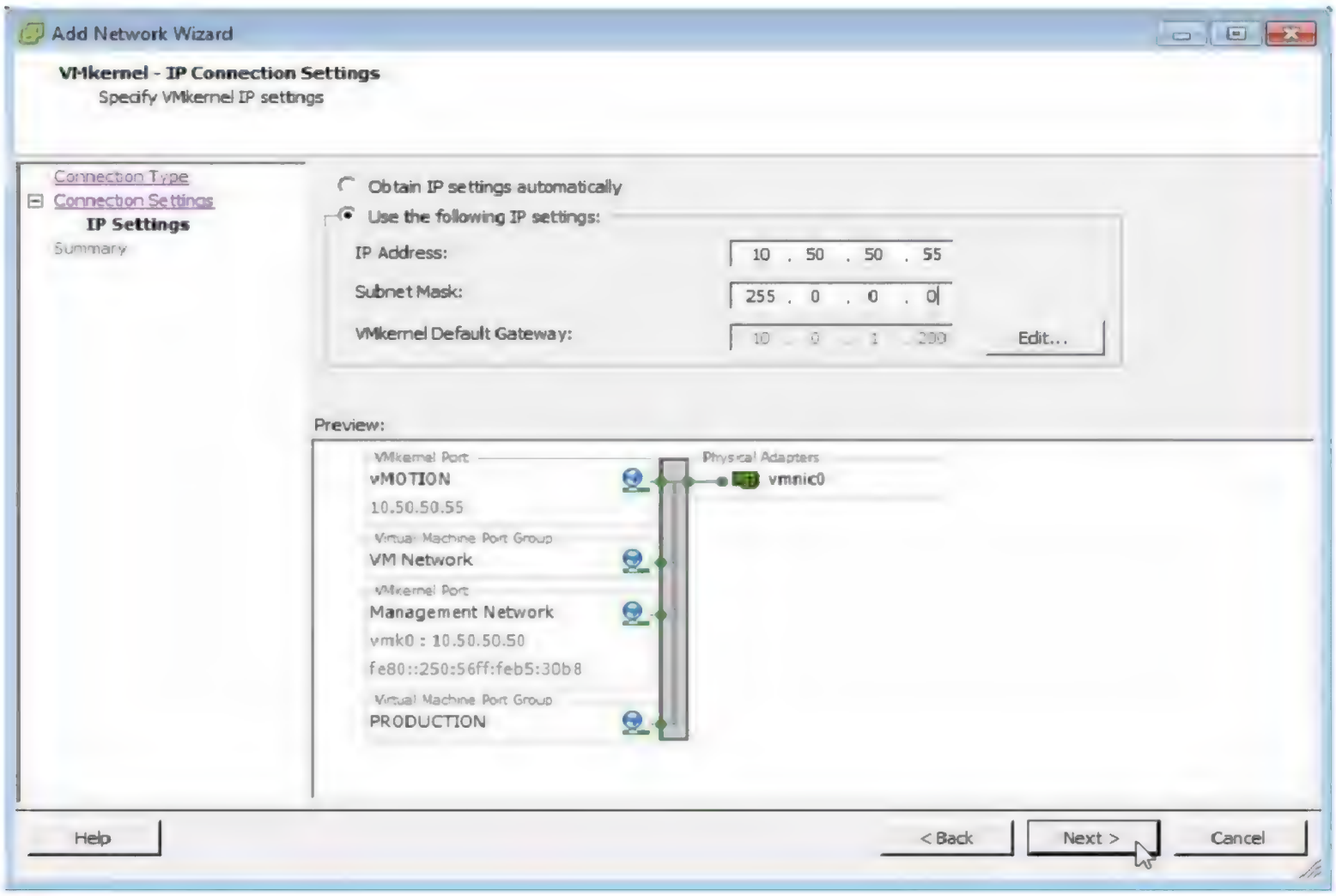
4. Enter the Network Label for example vMotion



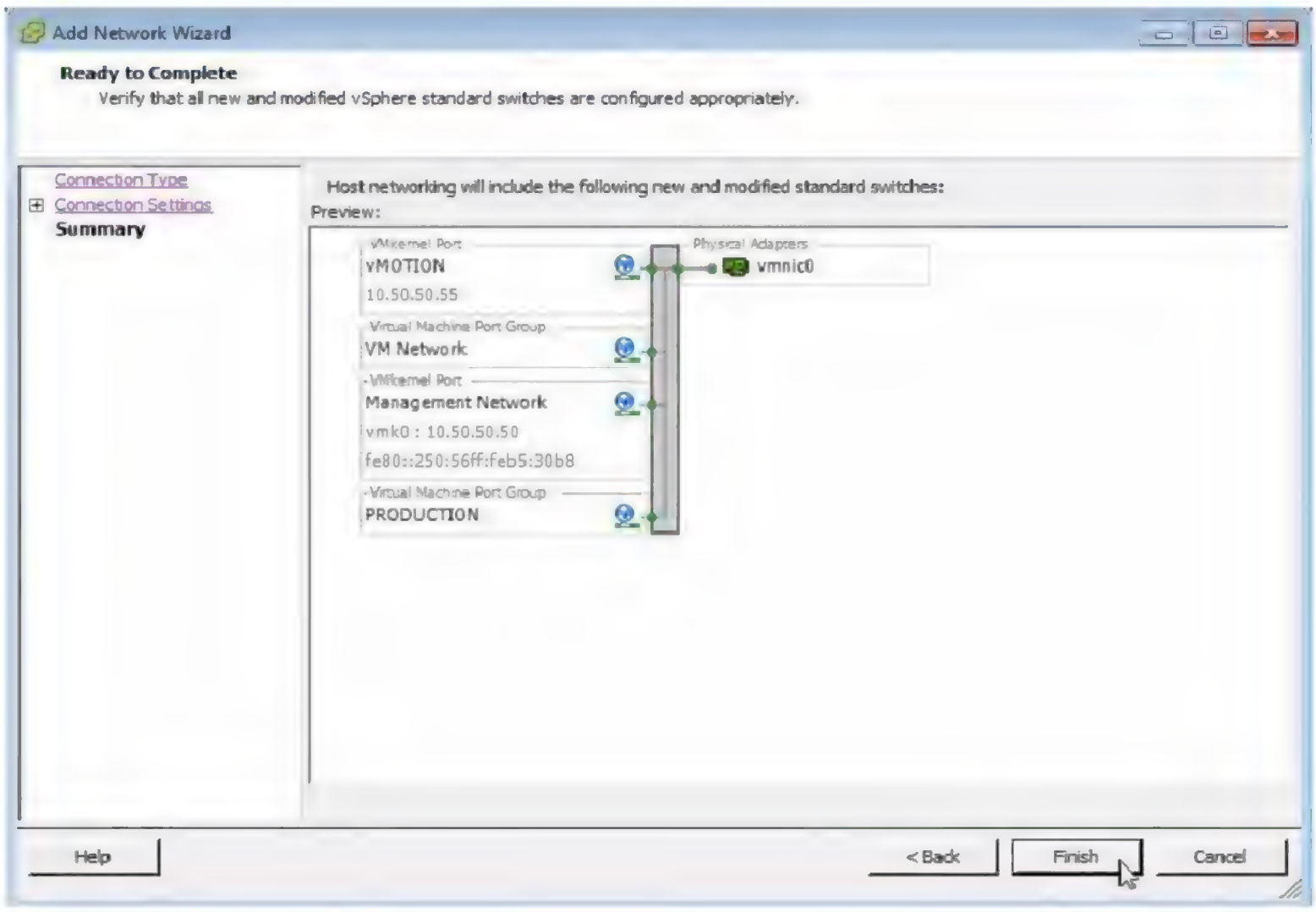
5. Check the box Use this port group for vMotion, Next to continue



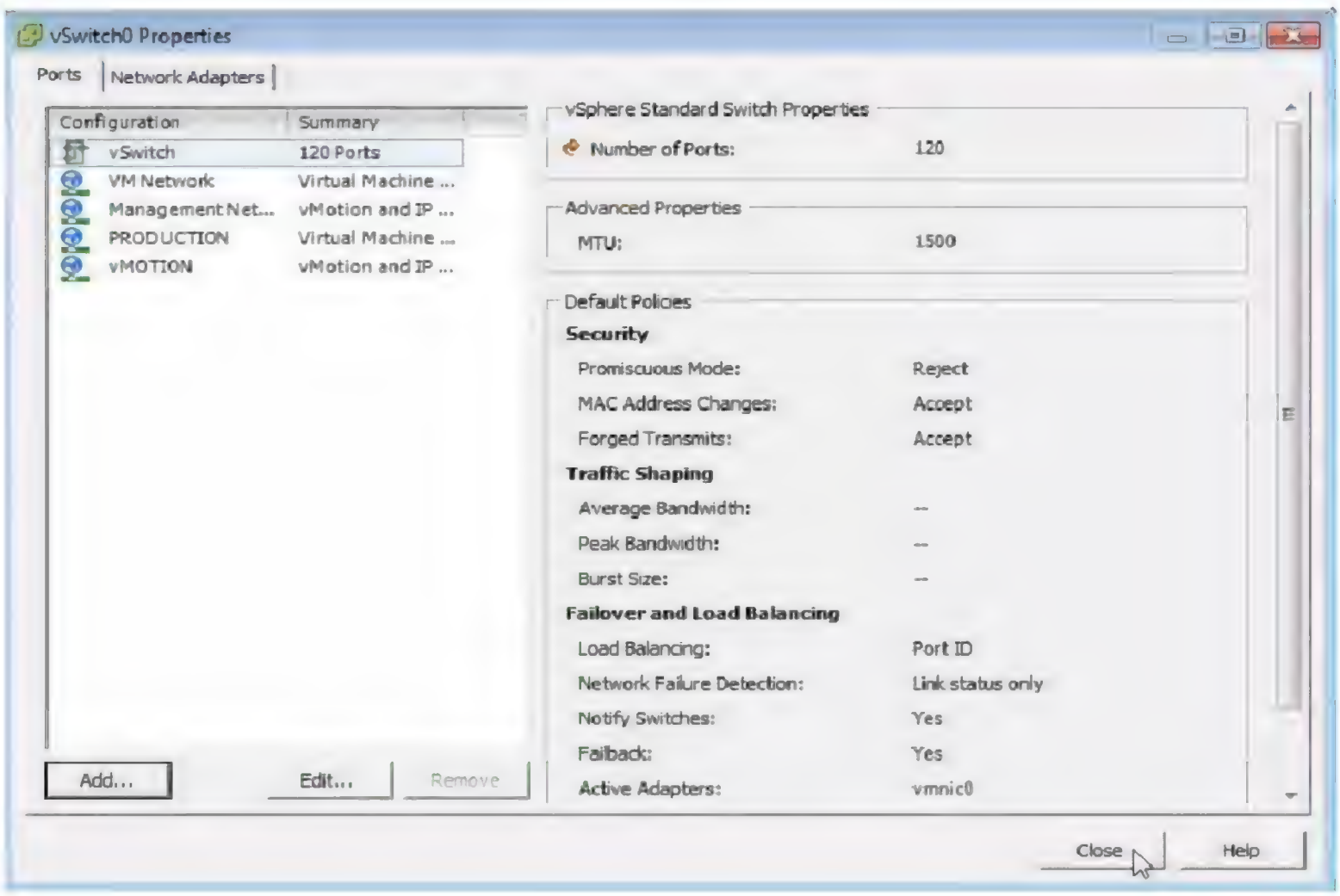
6. Assign an IP Address & Subnet



7. Next to continue

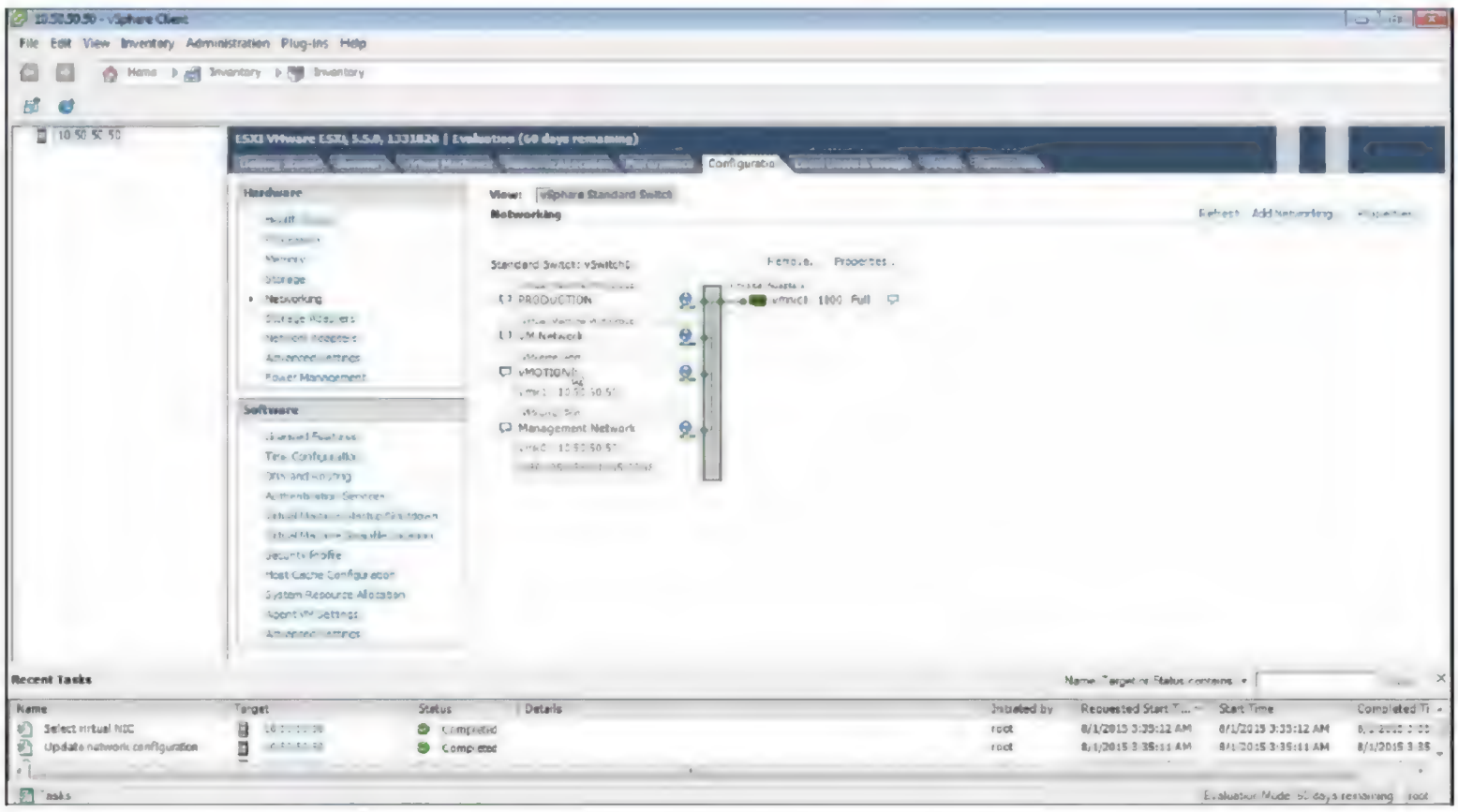


8. Finish



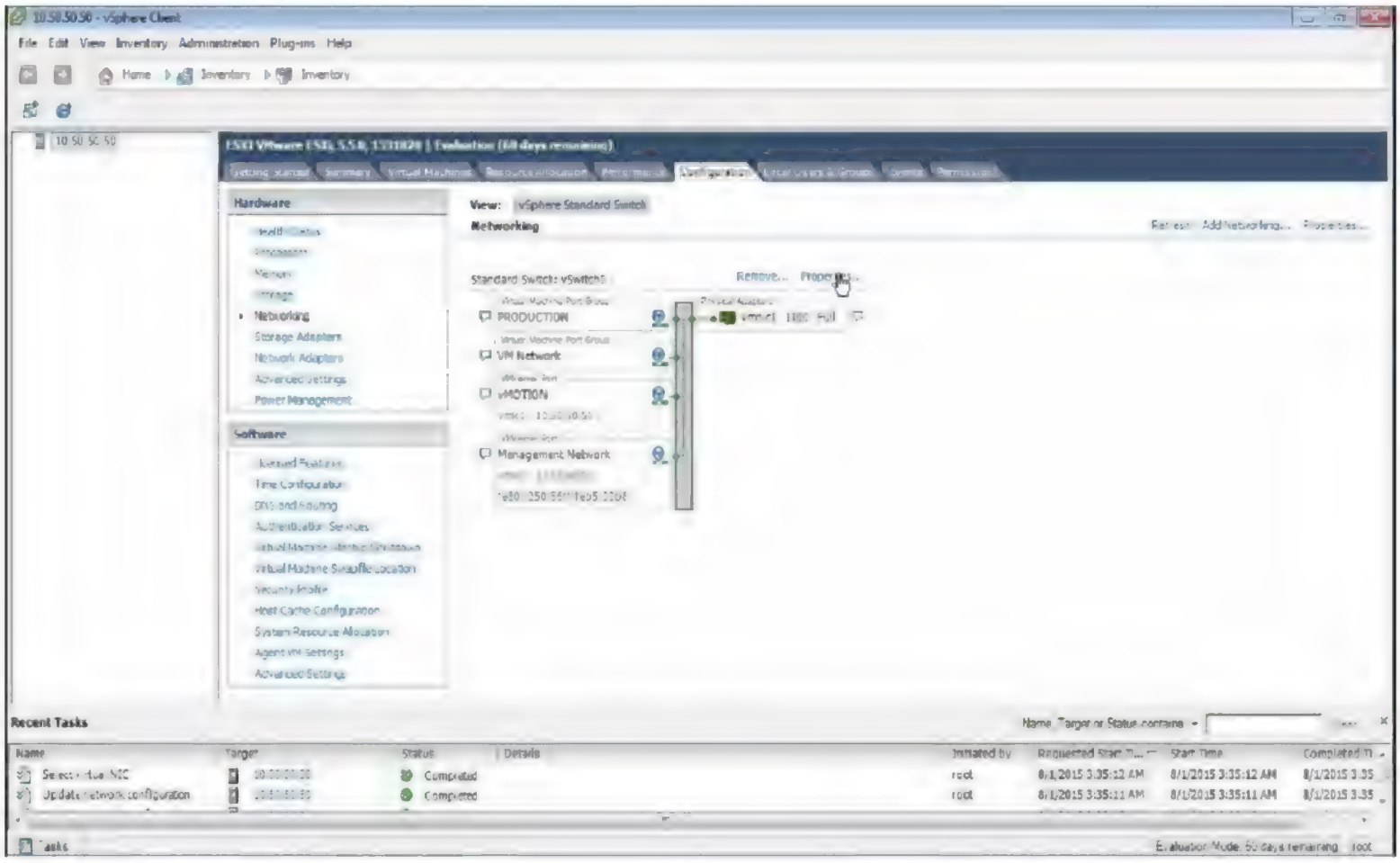
9. Close

Verification:



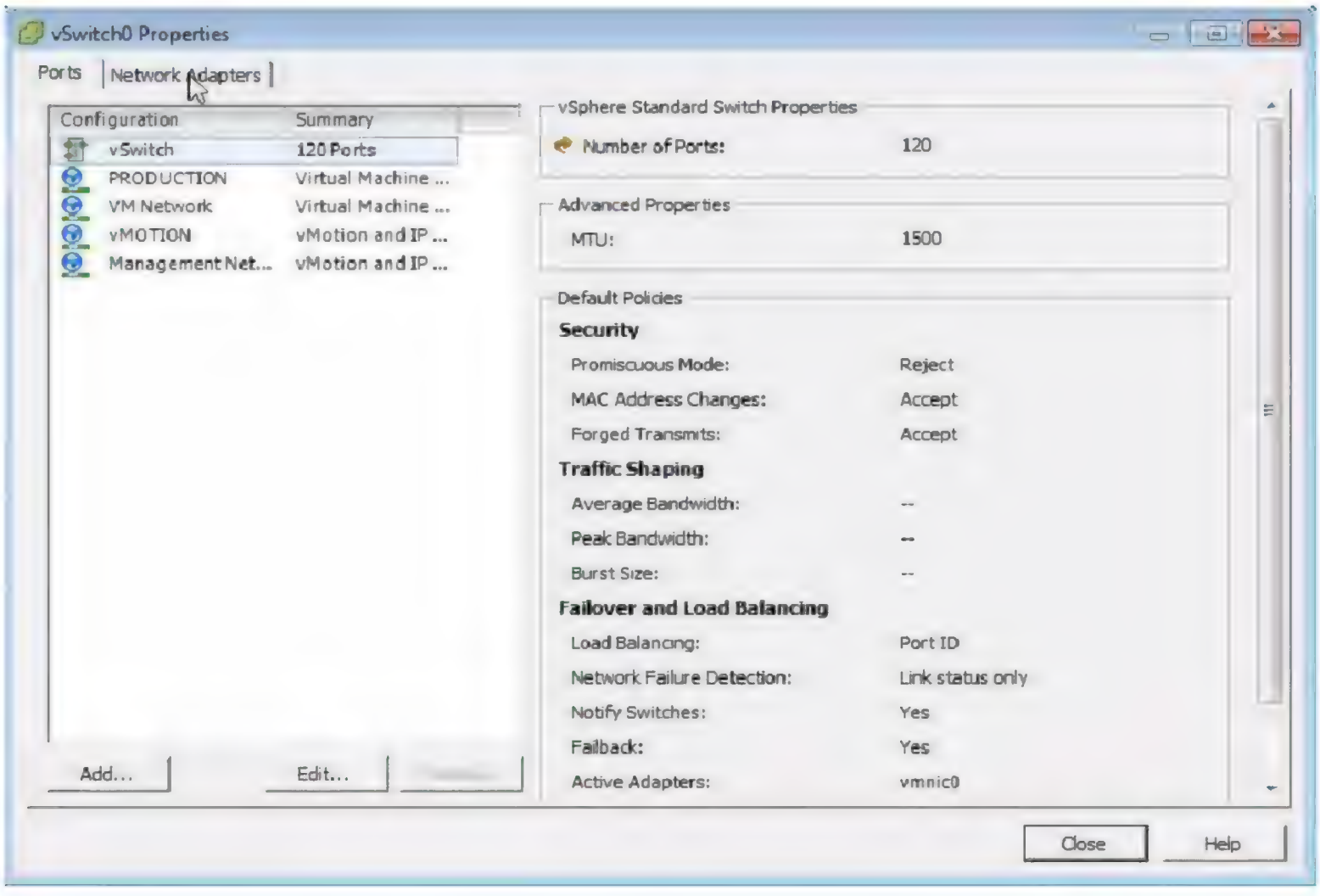
Observe a new VMkernel port with the label vMotion has been created

Adding a Physical Adaptor to vSwitch for redundancy

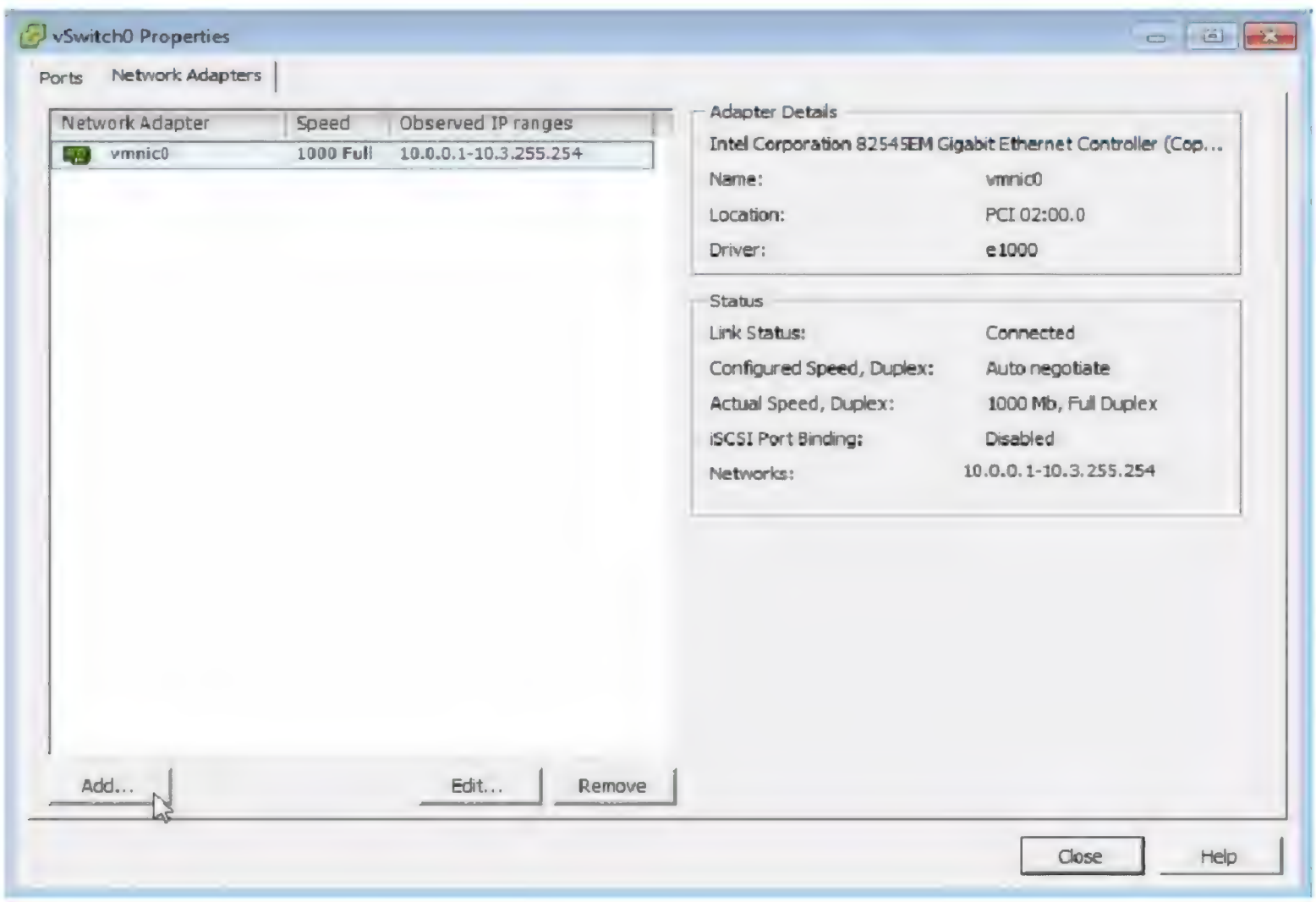


Steps:

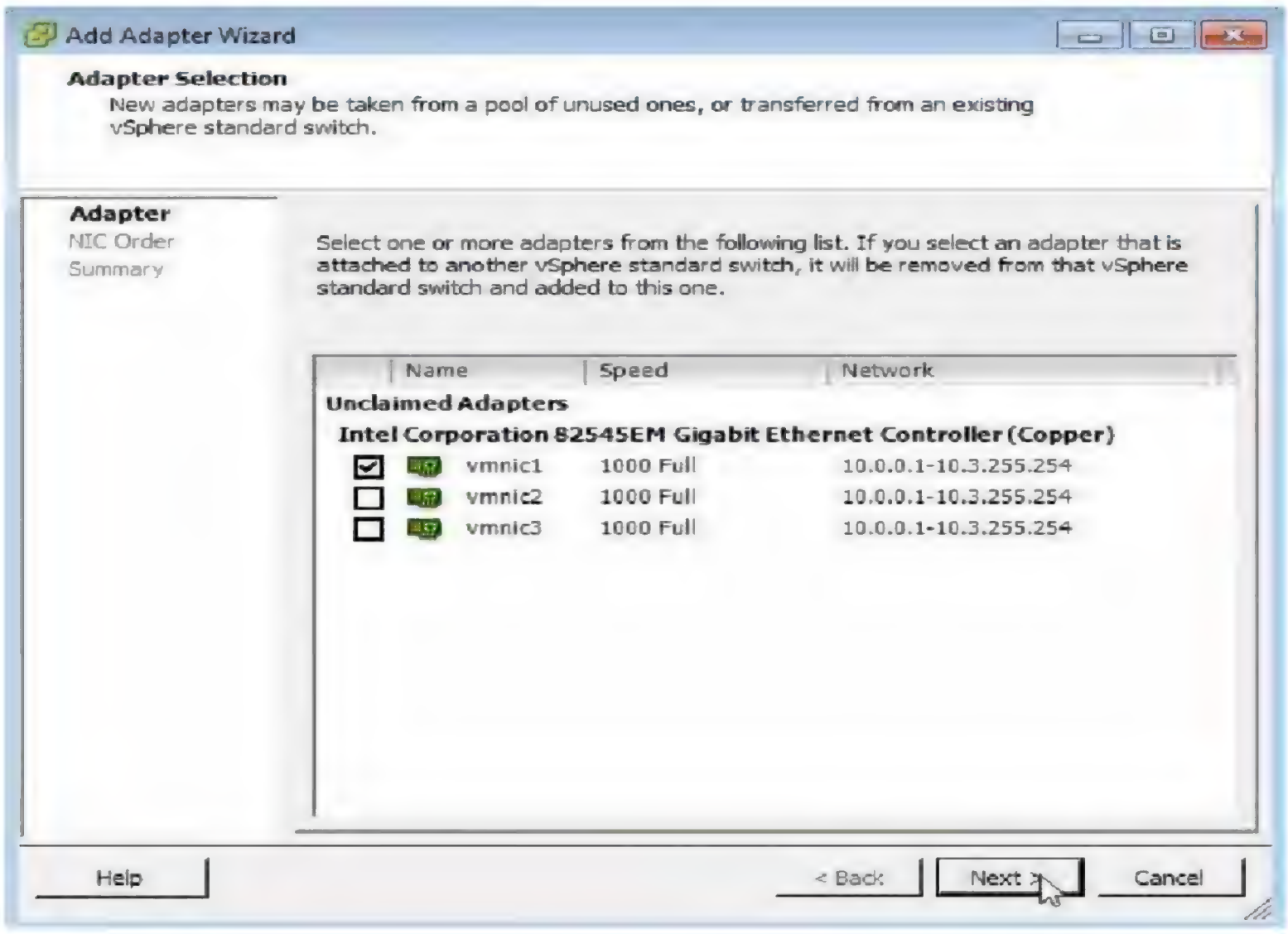
1. Click on properties of vSwitch0



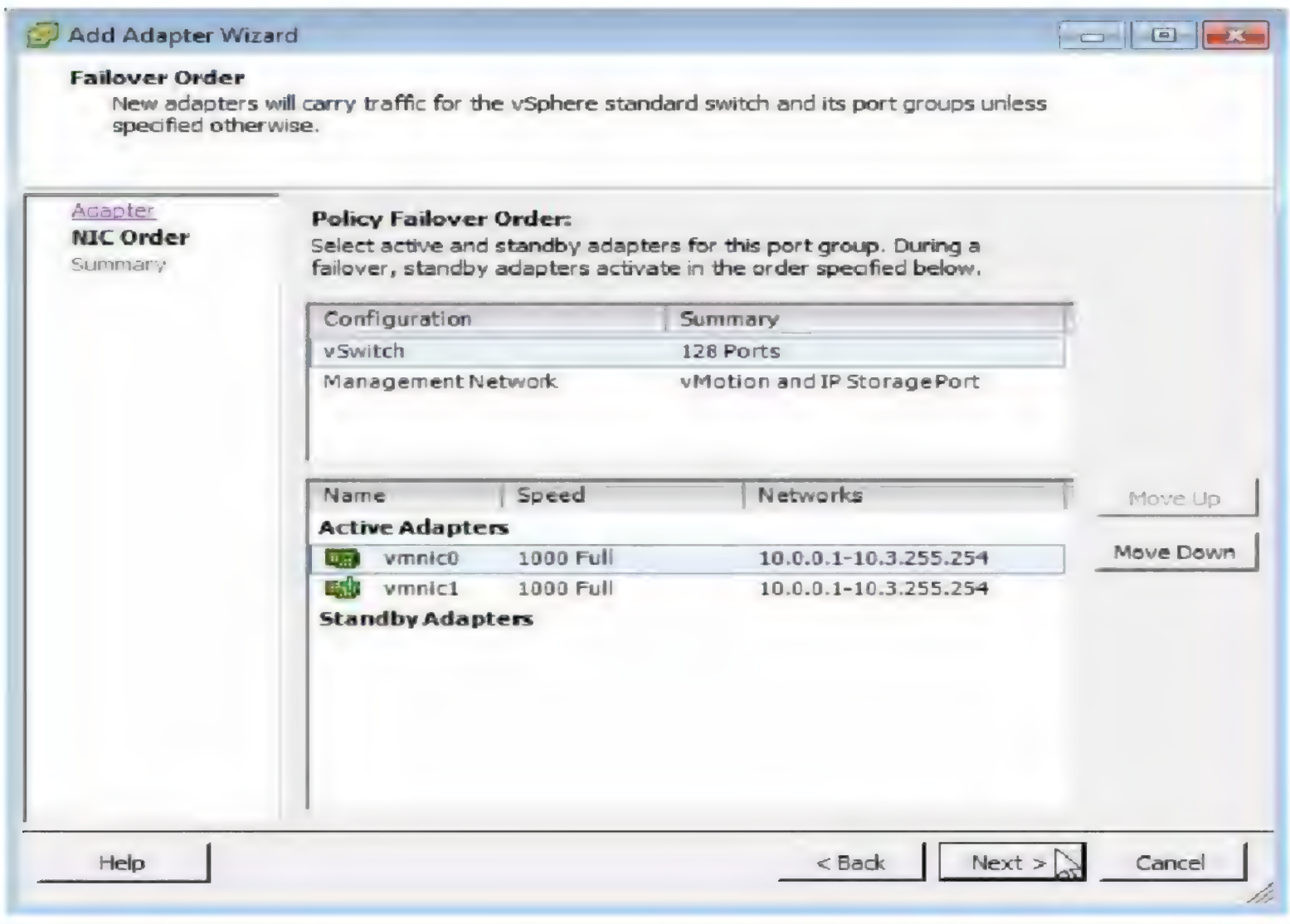
2. Select Network Adapters tab



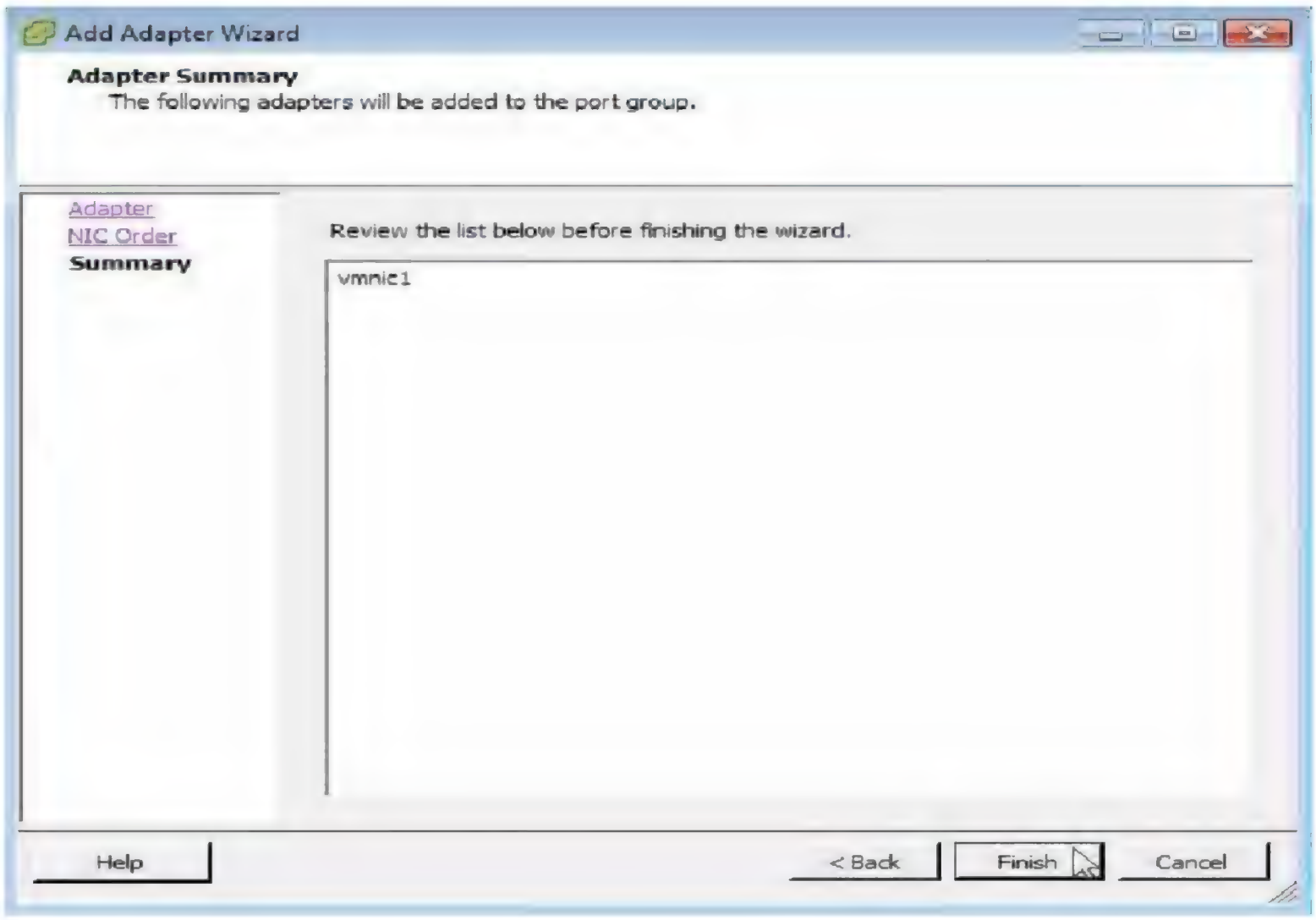
3. Add to continue



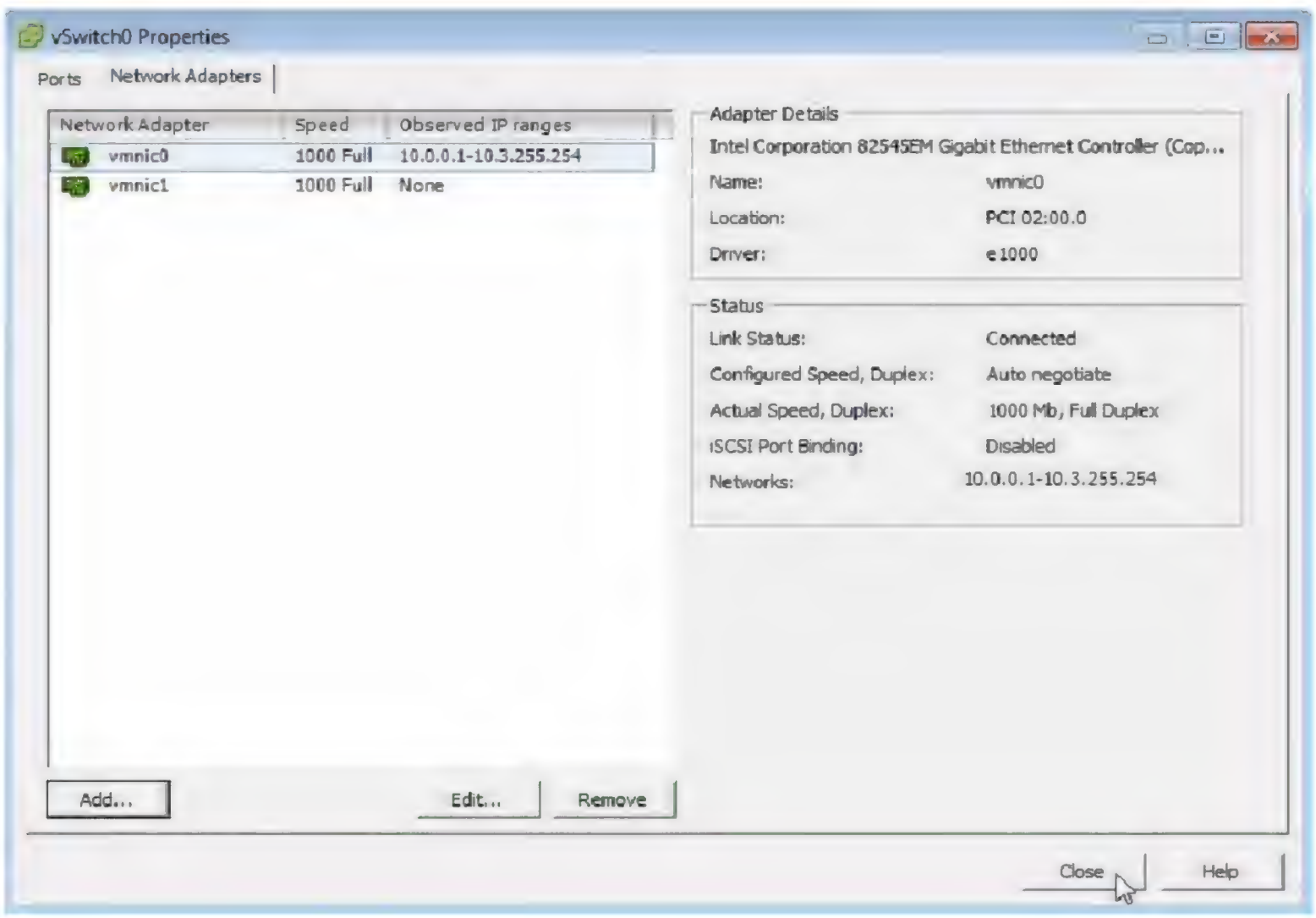
4. Select one of the adapters from the list, Next to continue



5. Next to continue

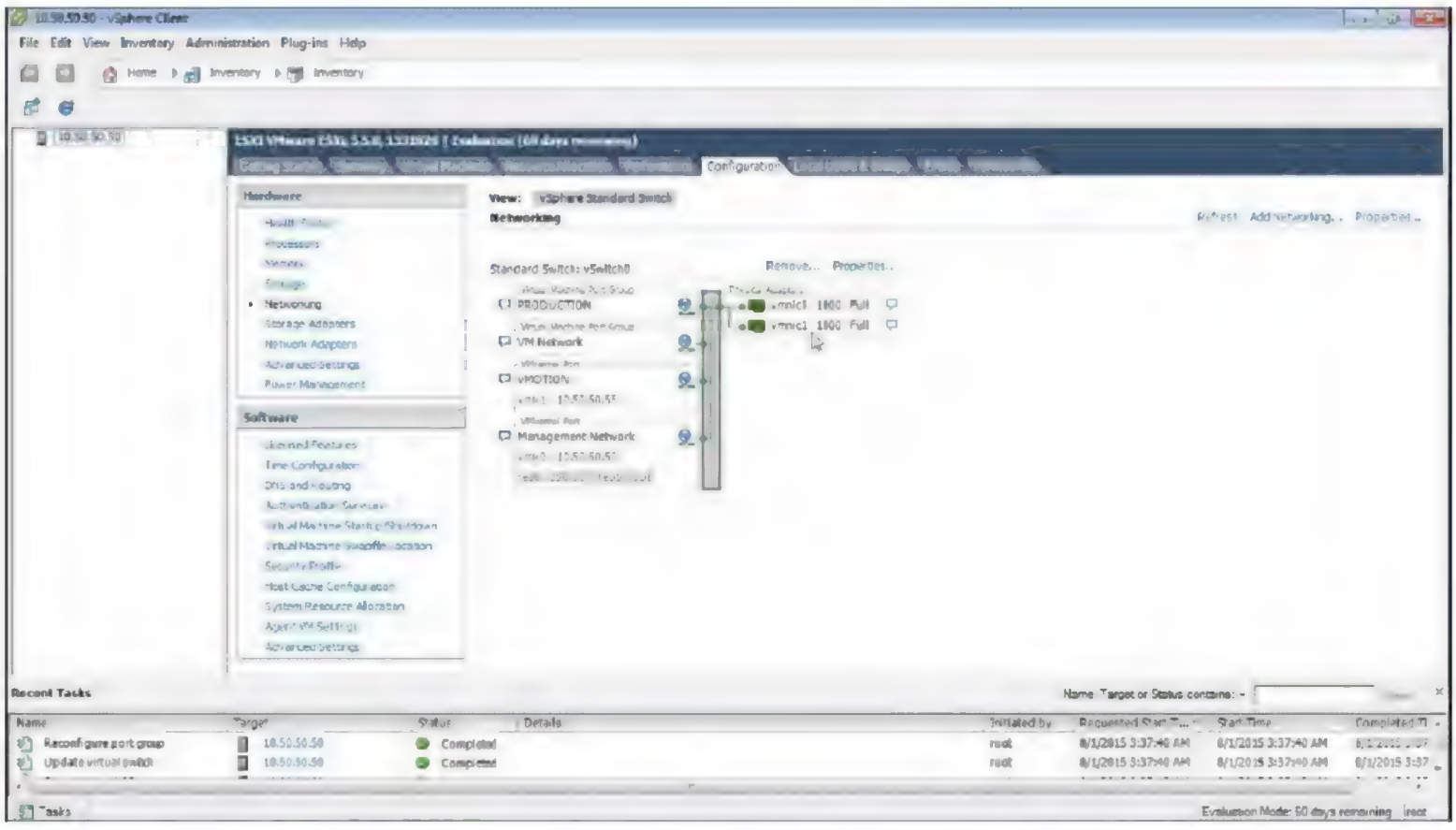


6. Finish to continue



7. Close

Verification:



Observe vmnic1 has been added to vSwitch0 for redundancy

LAB-5: CREATING A VIRTUAL MACHINE AND INSTALLING GUEST OS ON A VM

Objective:

To Create a Virtual Machine

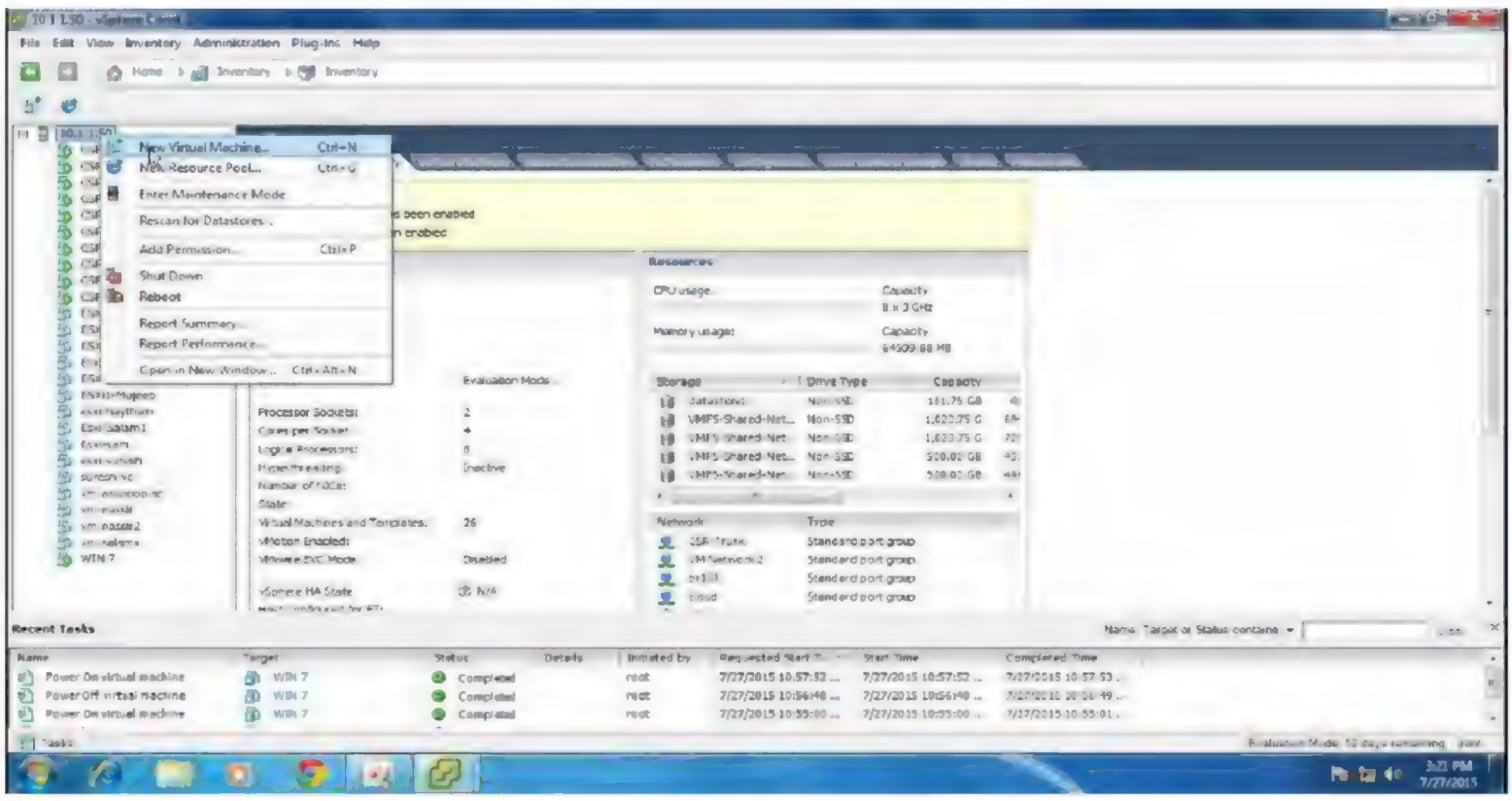
To Install a Guest Operating System

Tasks:

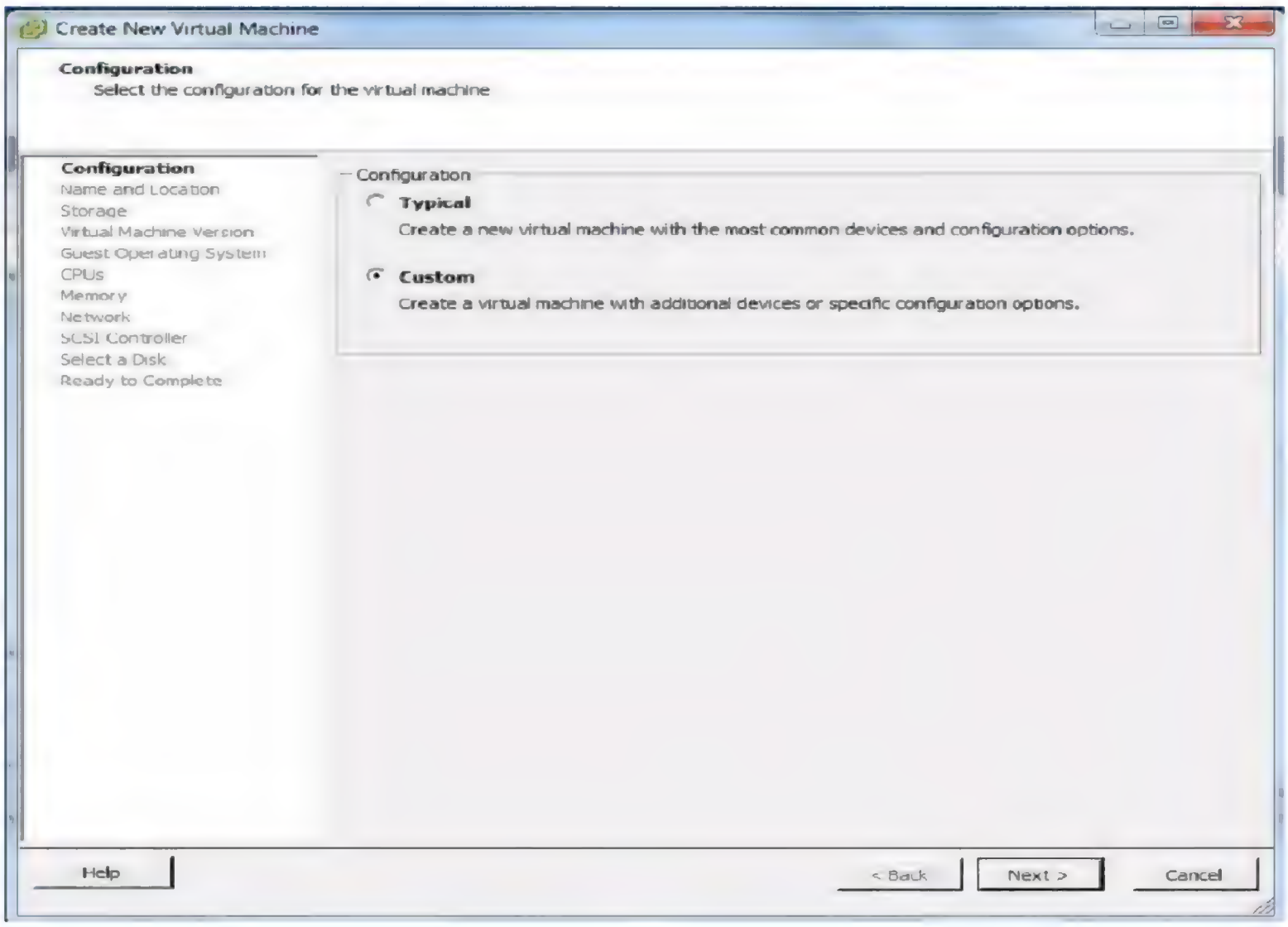
- Login to ESXi Host
- Create a new Virtual Machine
- Install Guest Operating System on the Virtual Machine

Steps:

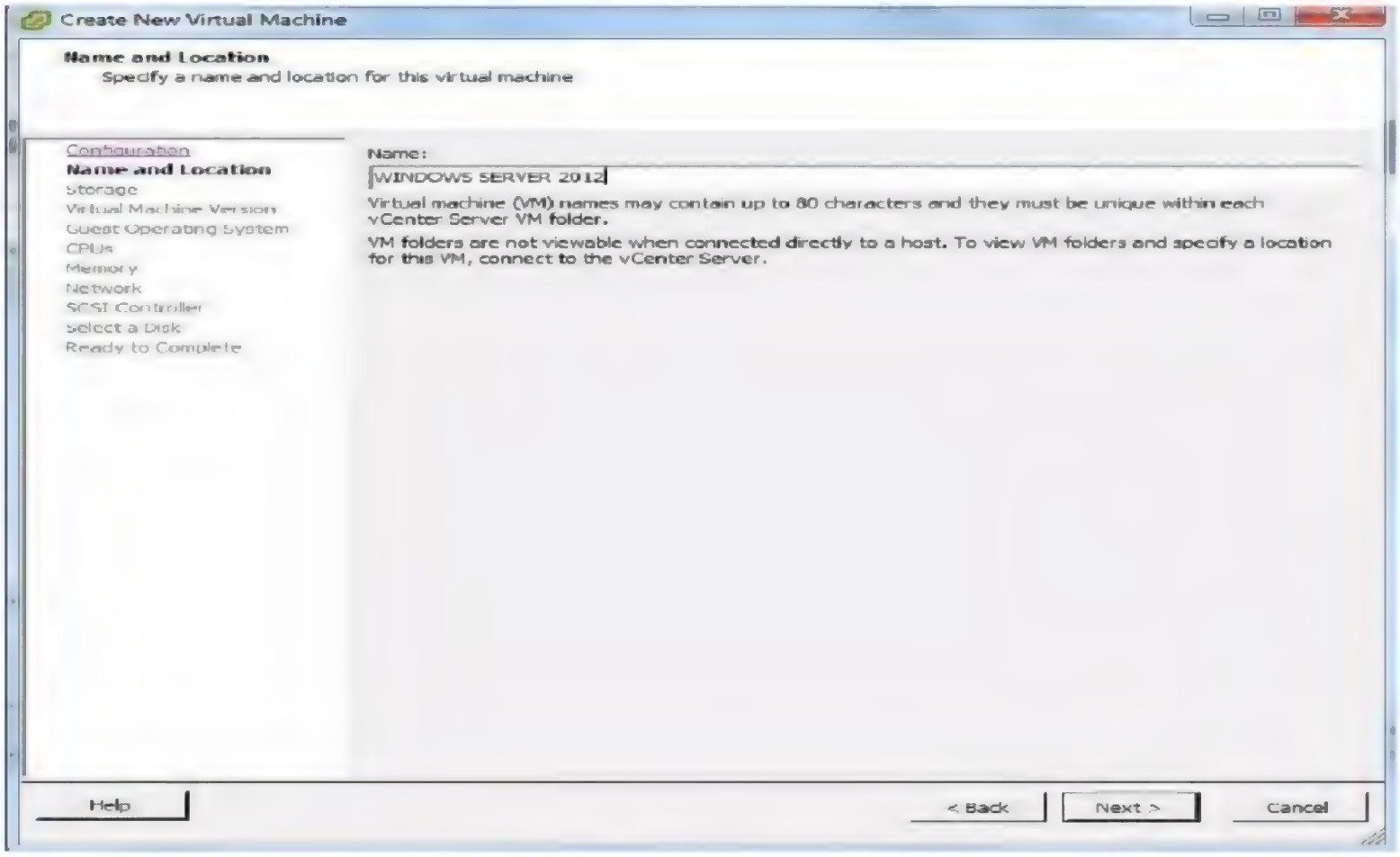
1. Login to Host using vSphere Client



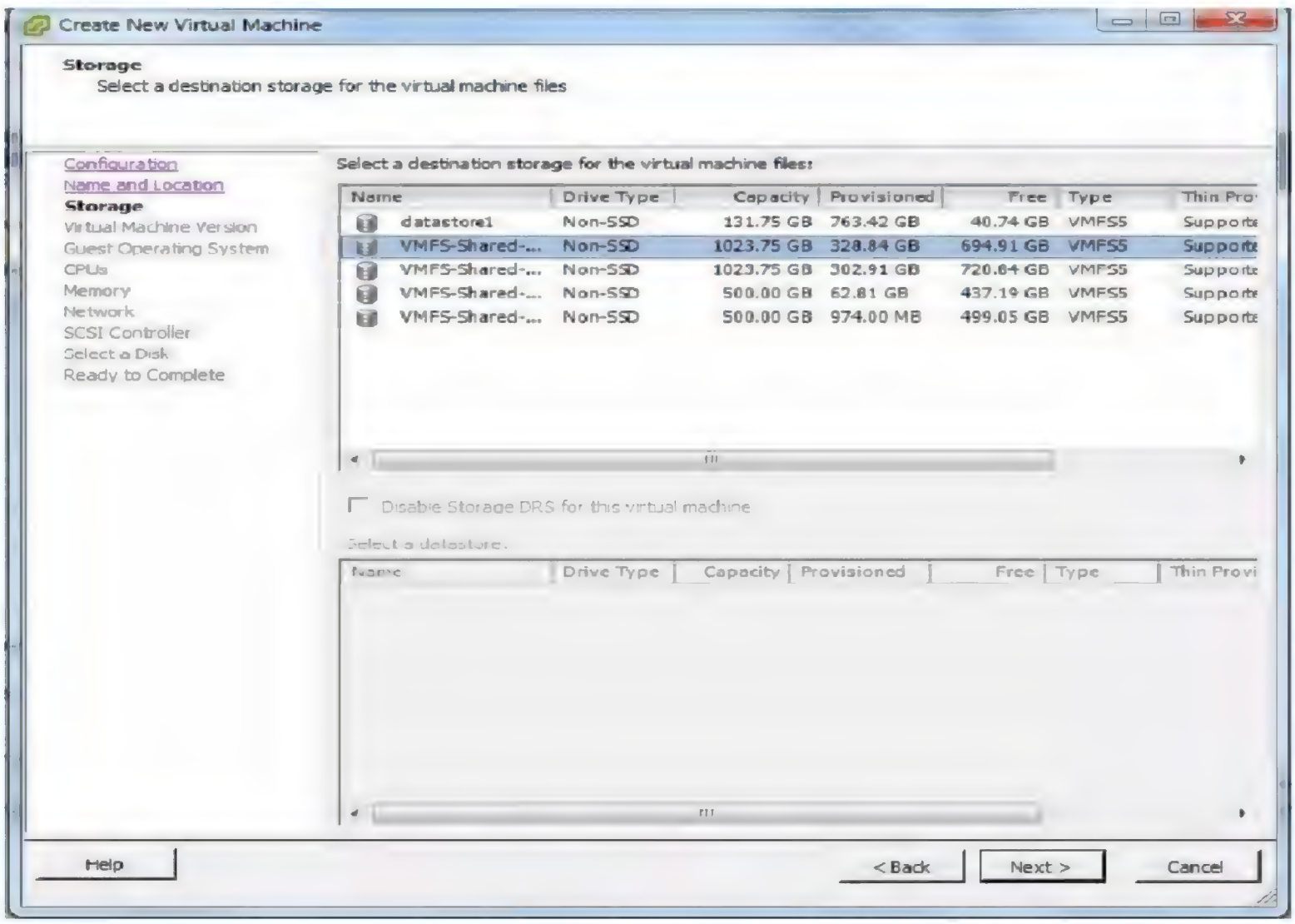
2. Right click on Host click on New Virtual Machine



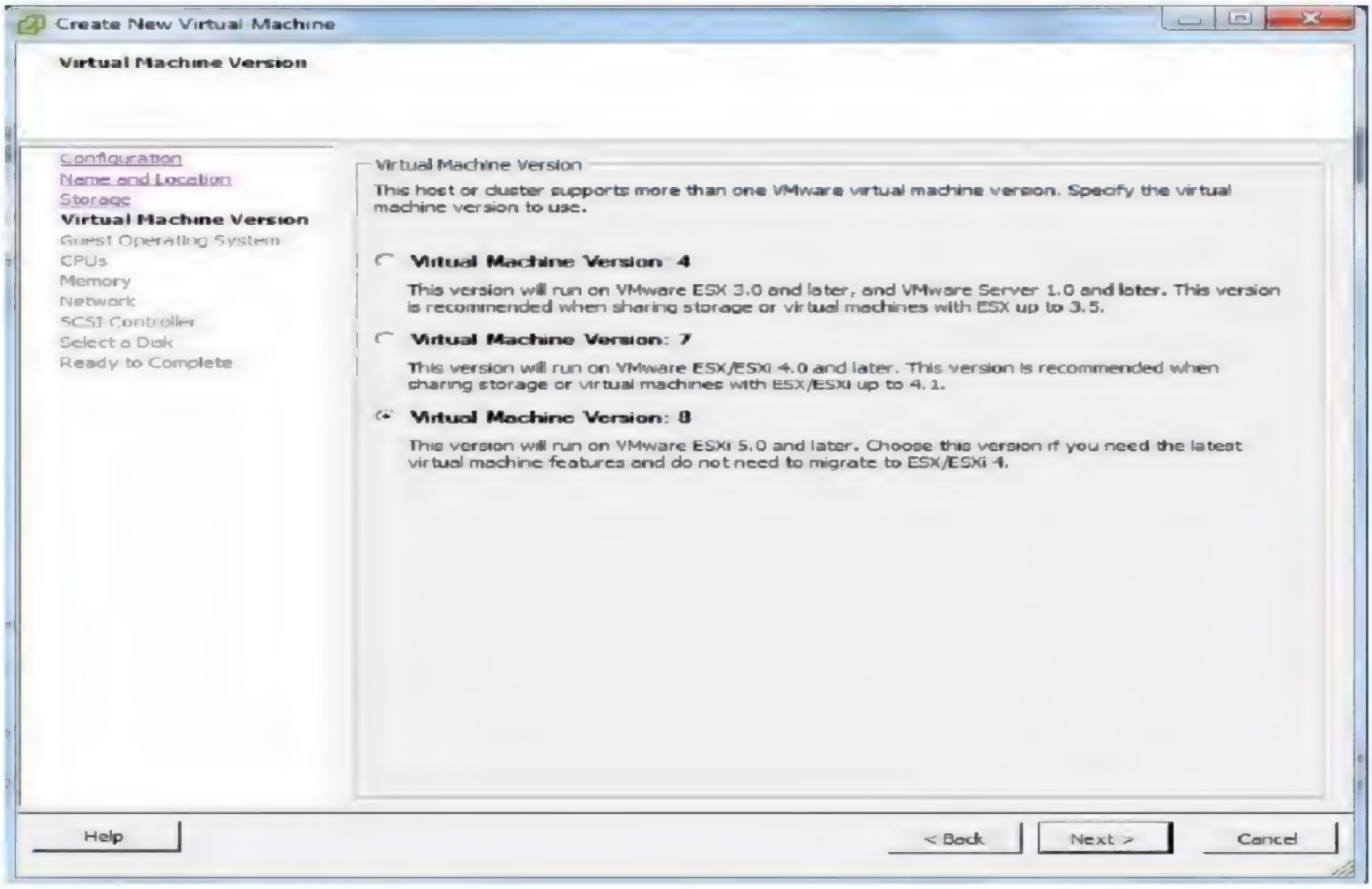
3. Select Custom, Next



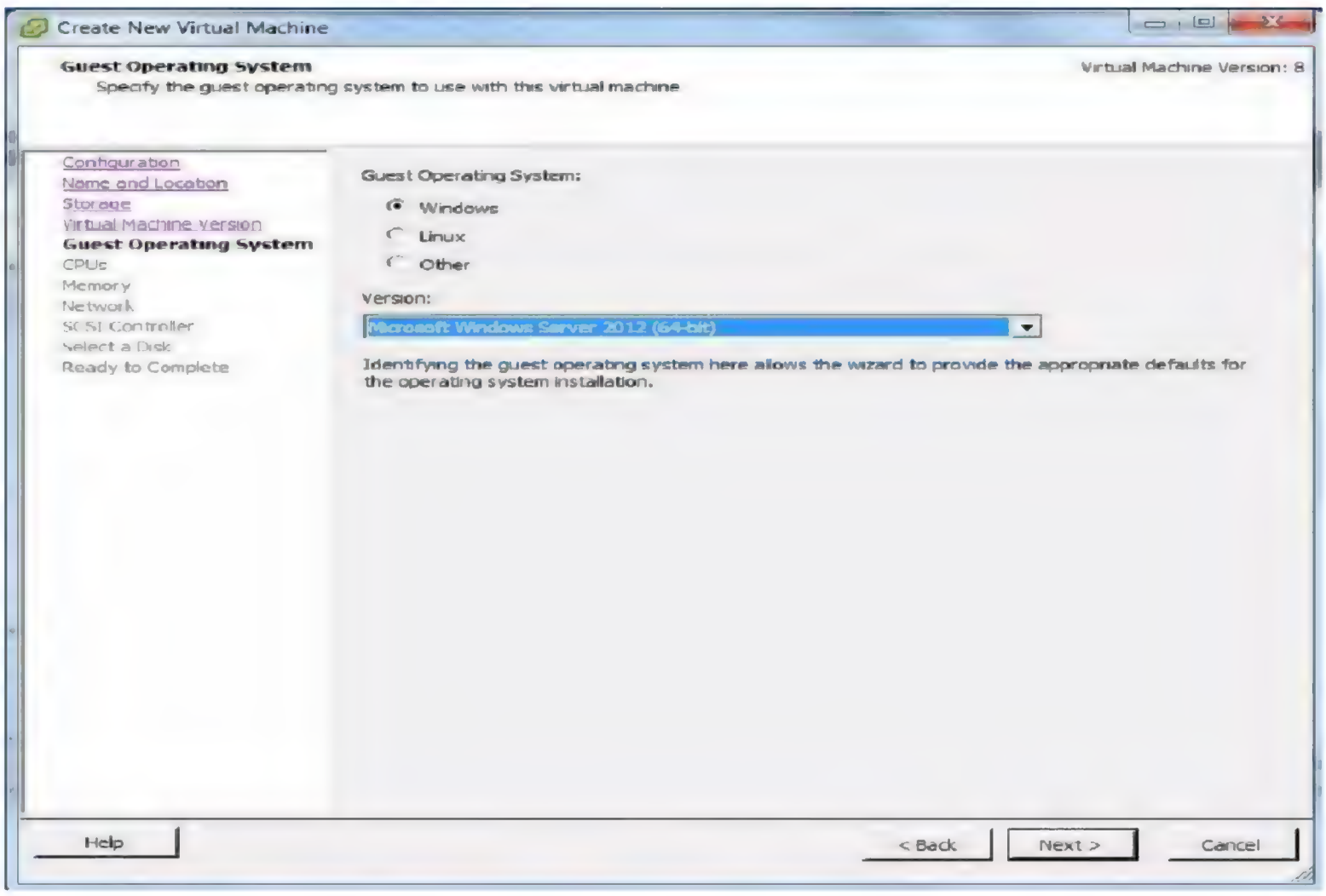
4. Give a name to your virtual machine, Next to continue



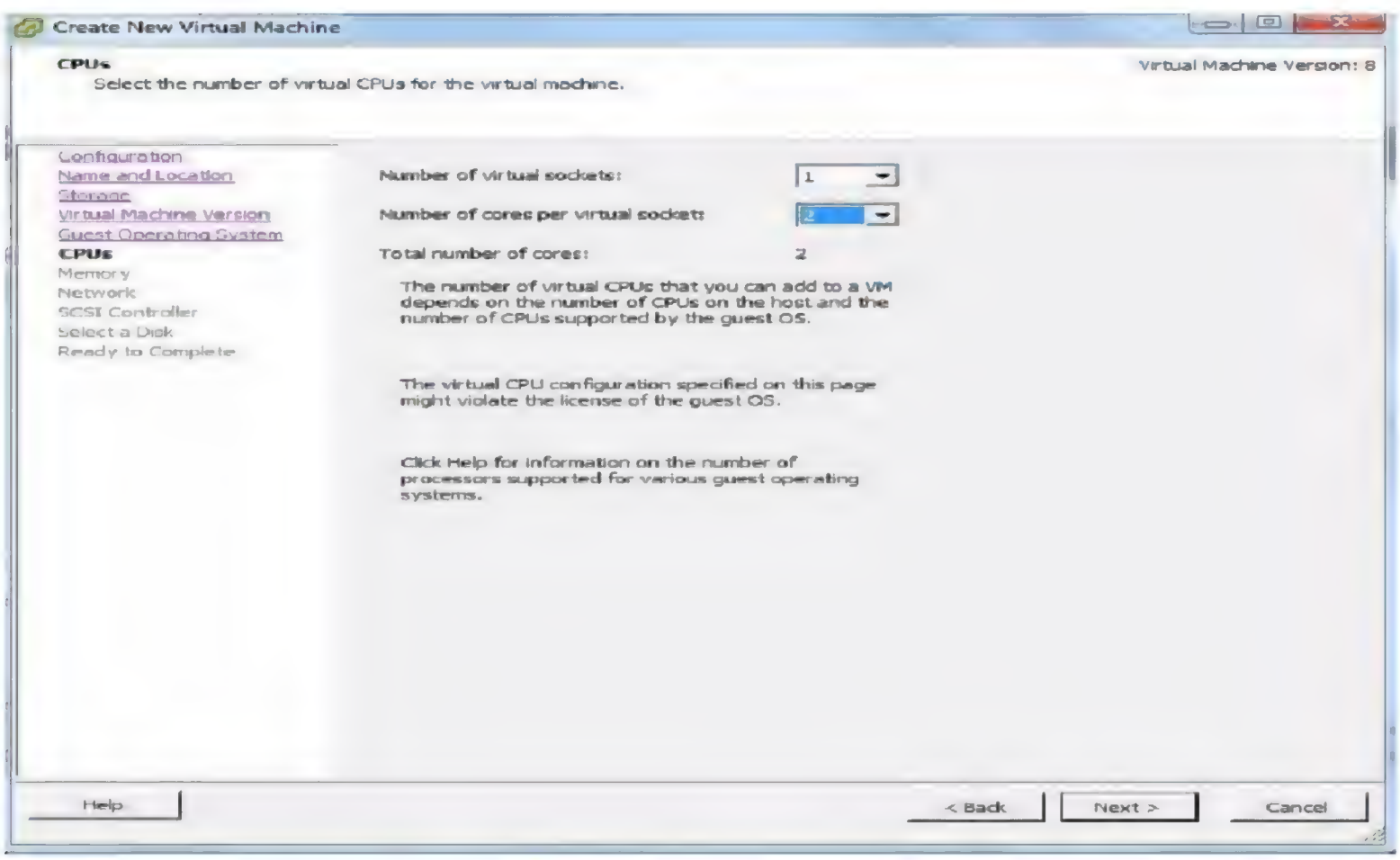
5. Select a data store to store the VM, Next to Continue



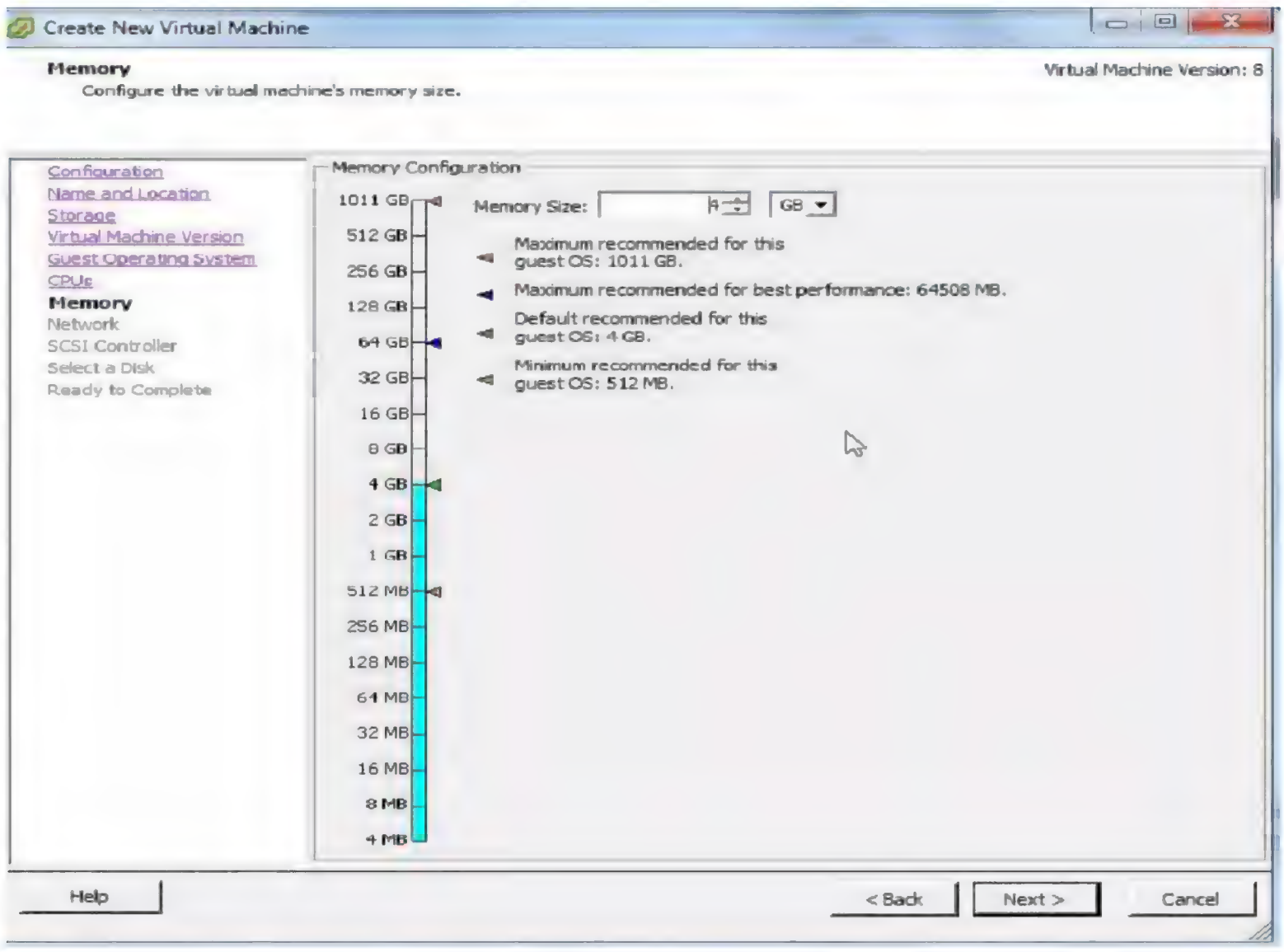
6. Select the Virtual Machine Version 8, Next to continue



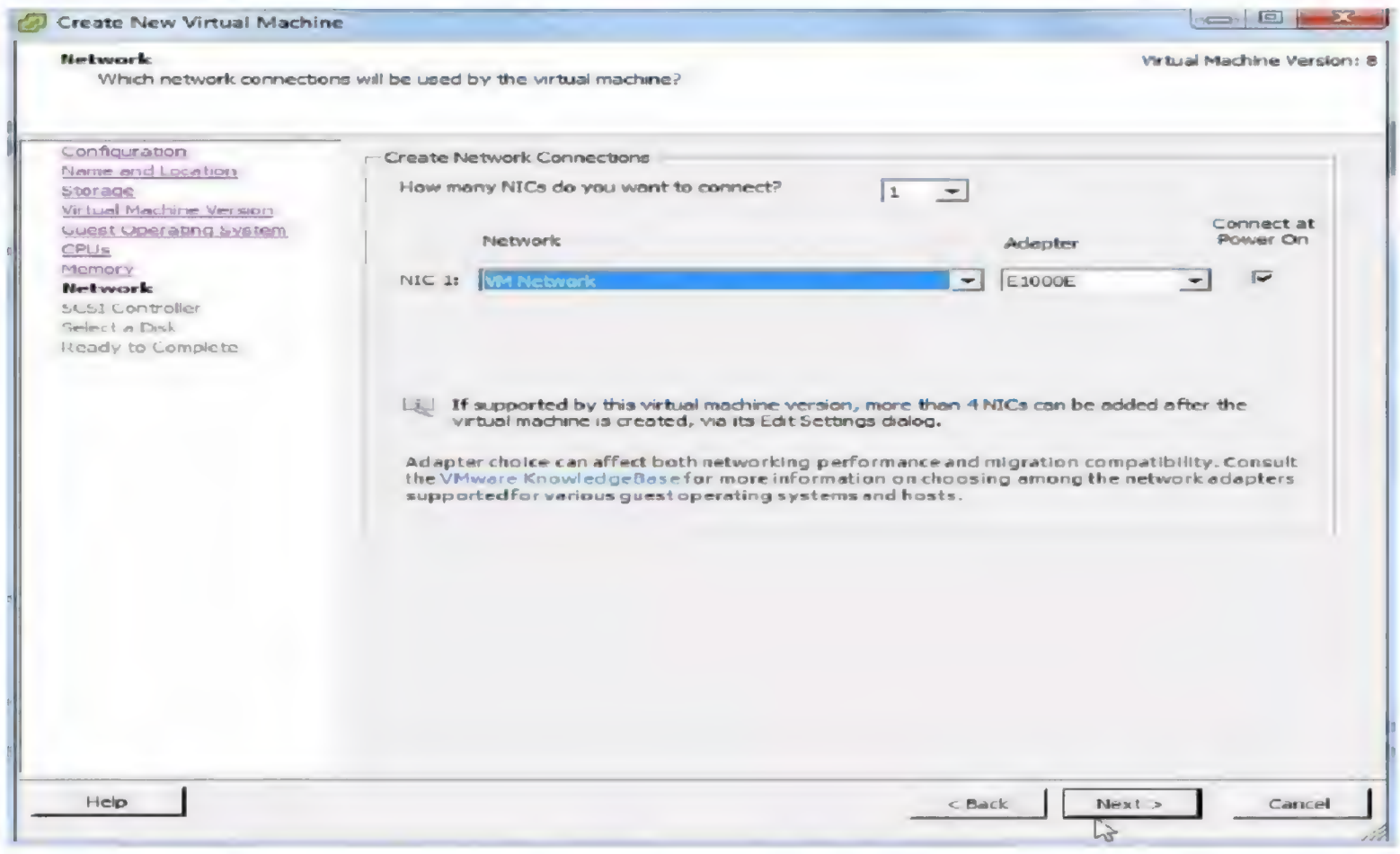
7. Select the Guest OS and the Version, Next



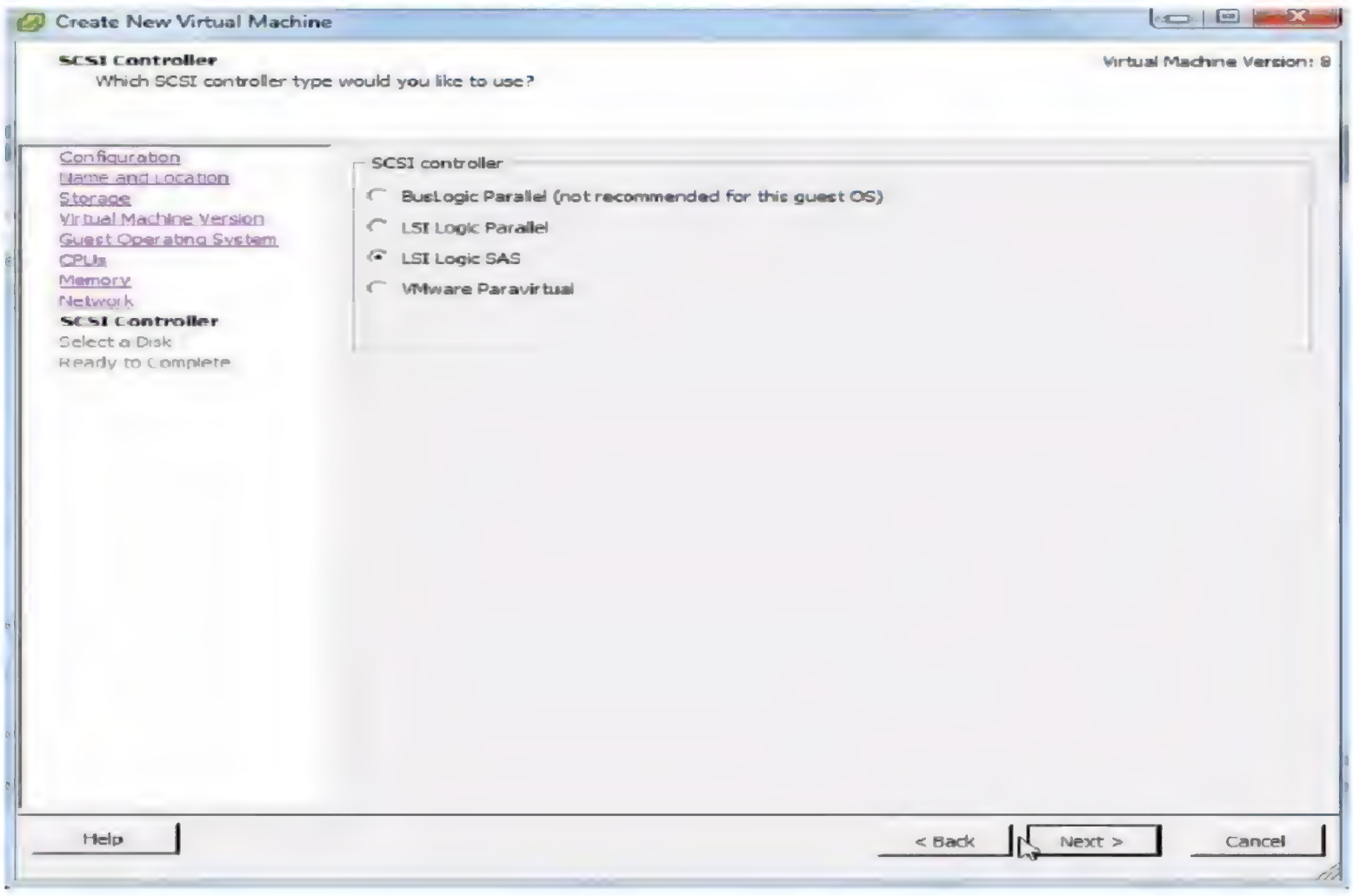
8. Select the no of vCPUs, Next to continue



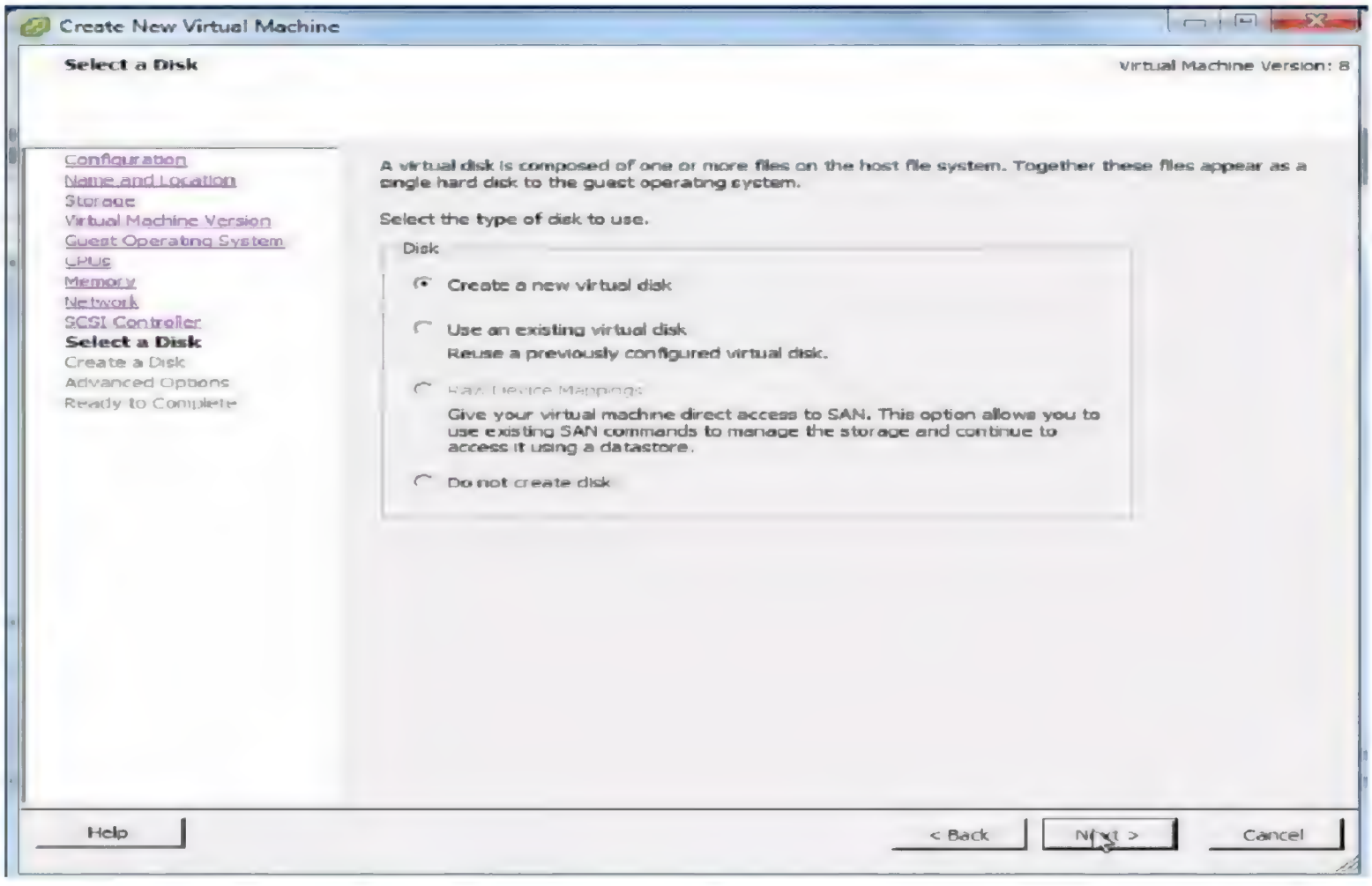
9. Configure the amount of memory, Next to continue



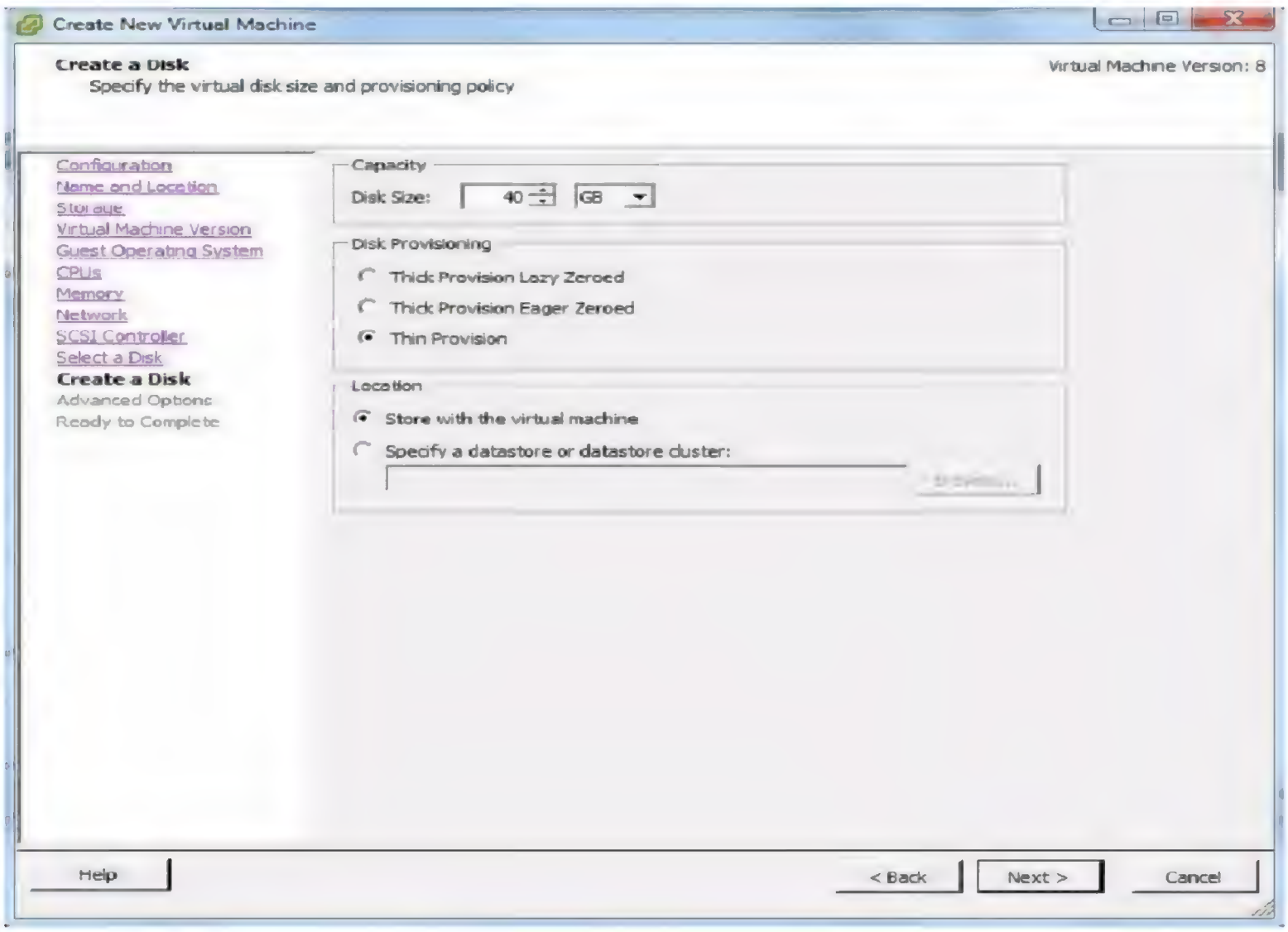
10. Select the no of NICs and the Network (VM port group), Next to continue



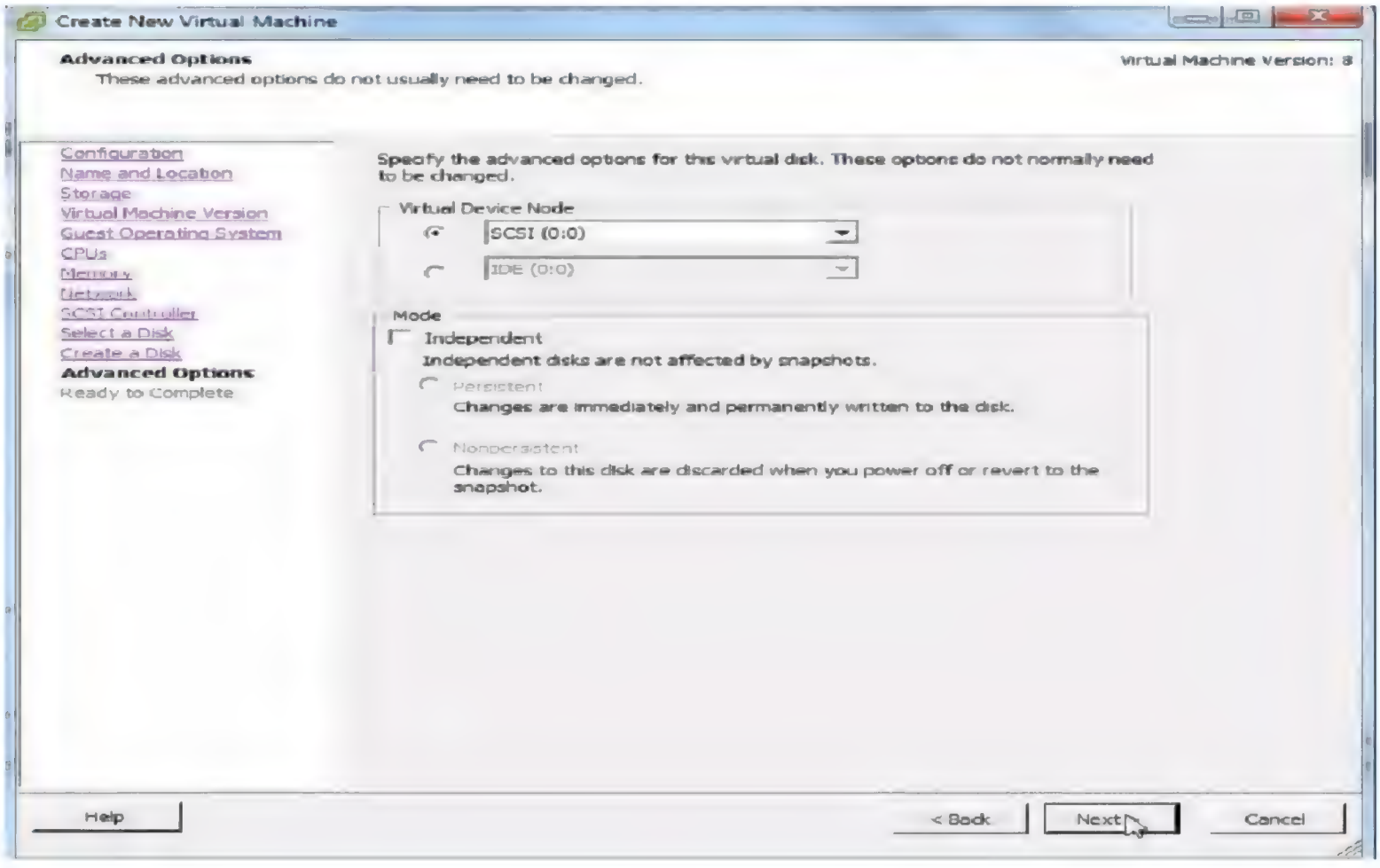
11. Based on your Guest OS selection one of the SCSI Controllers will be selected bydefault, Next to Continue



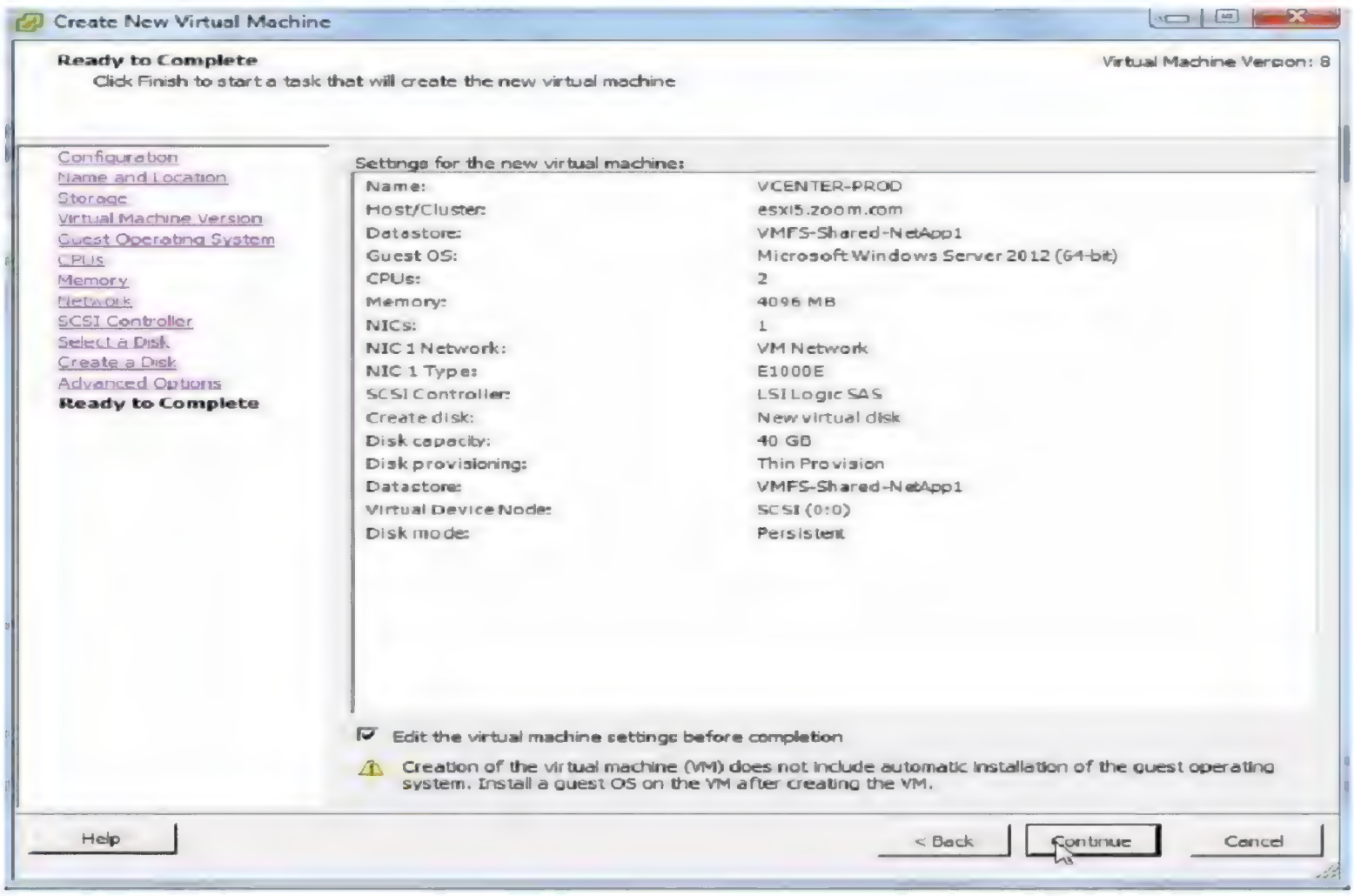
12. Create a new virtual disk, Next to continue



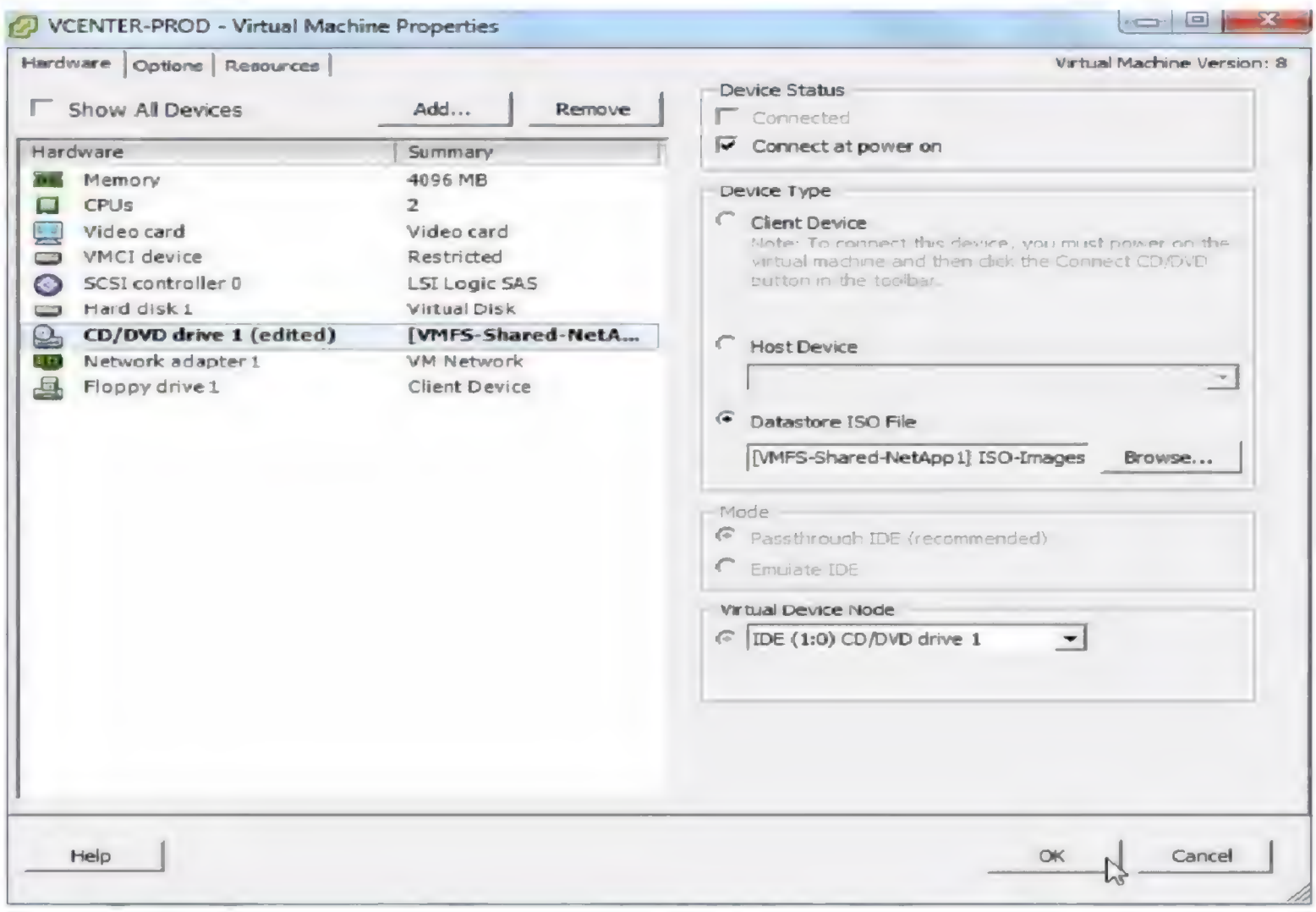
13. Select the virtual disk size and the provisioning, Next to continue



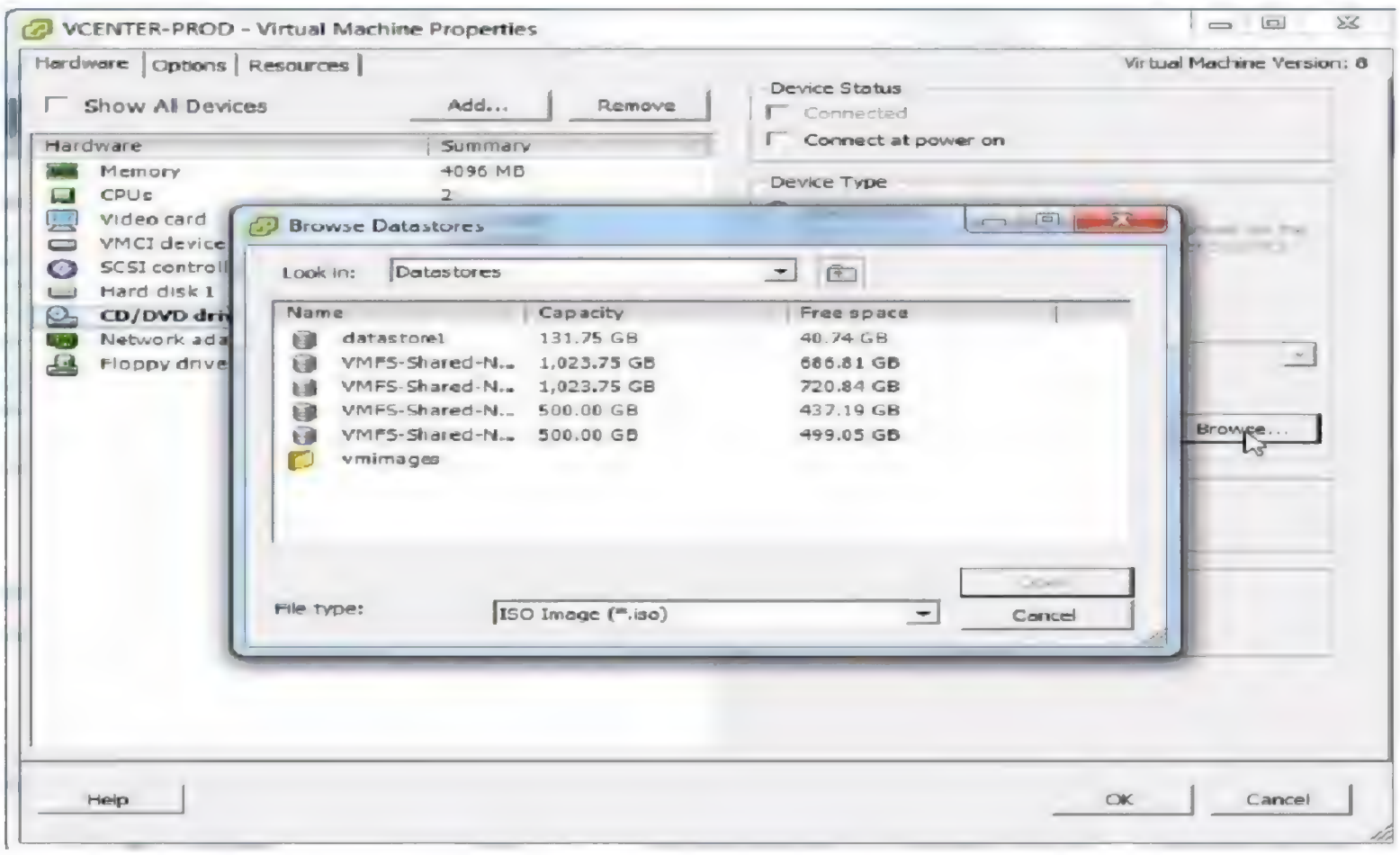
14. Default settings, Next to continue



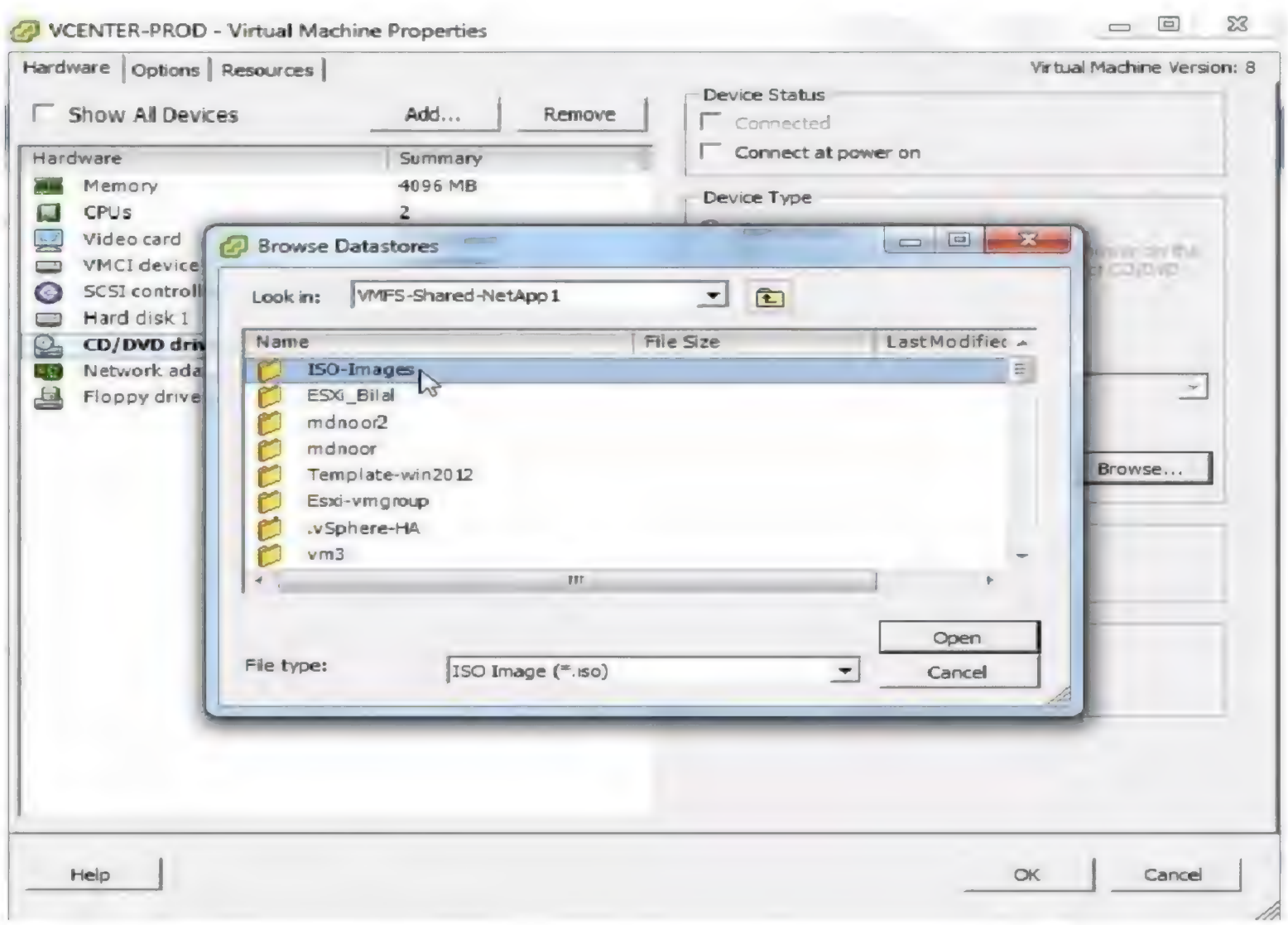
15. Select the check box Edit the VM settings, Continue



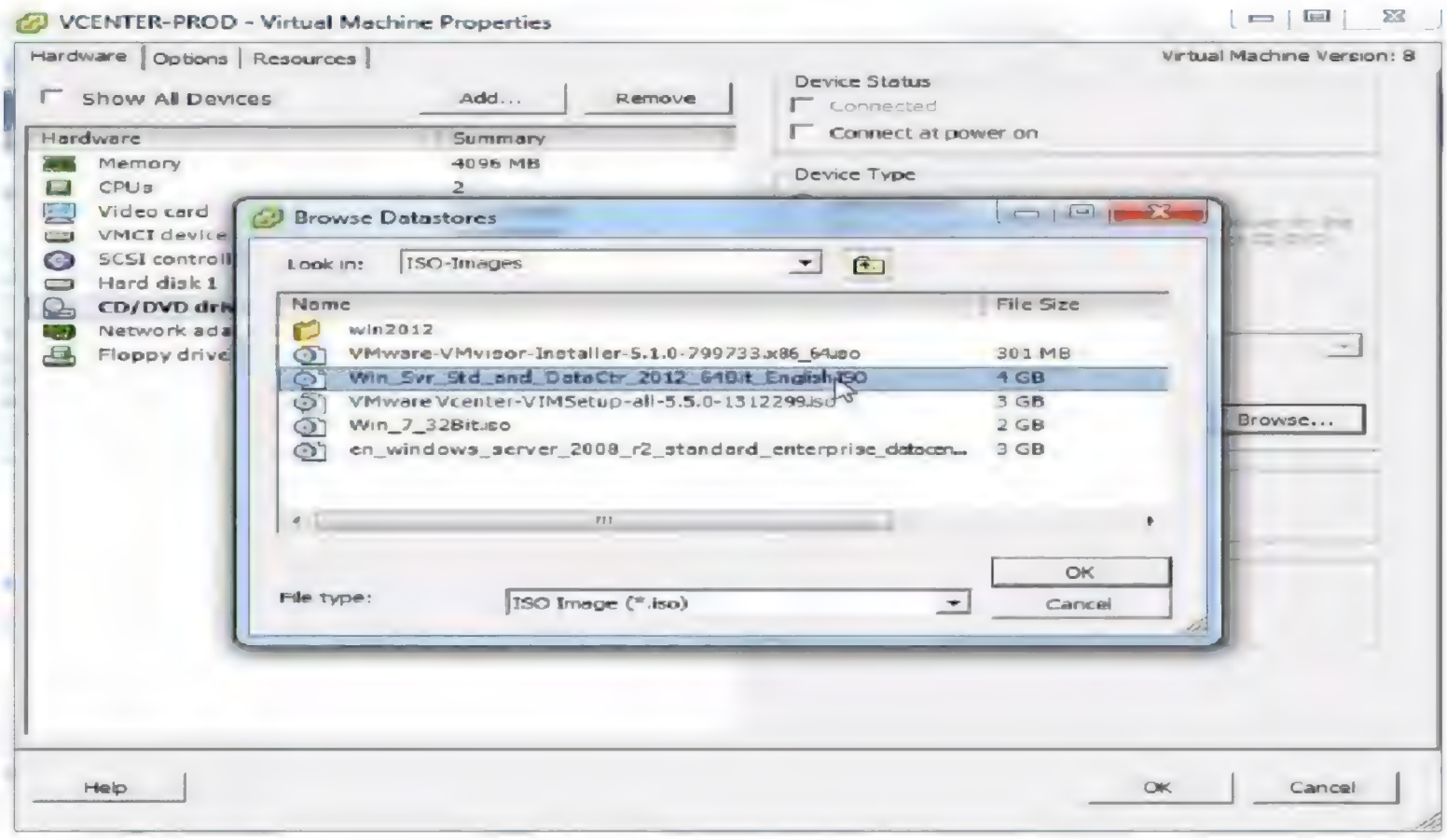
16. Select CD/DVD drive, Select Data store ISO file, Browse



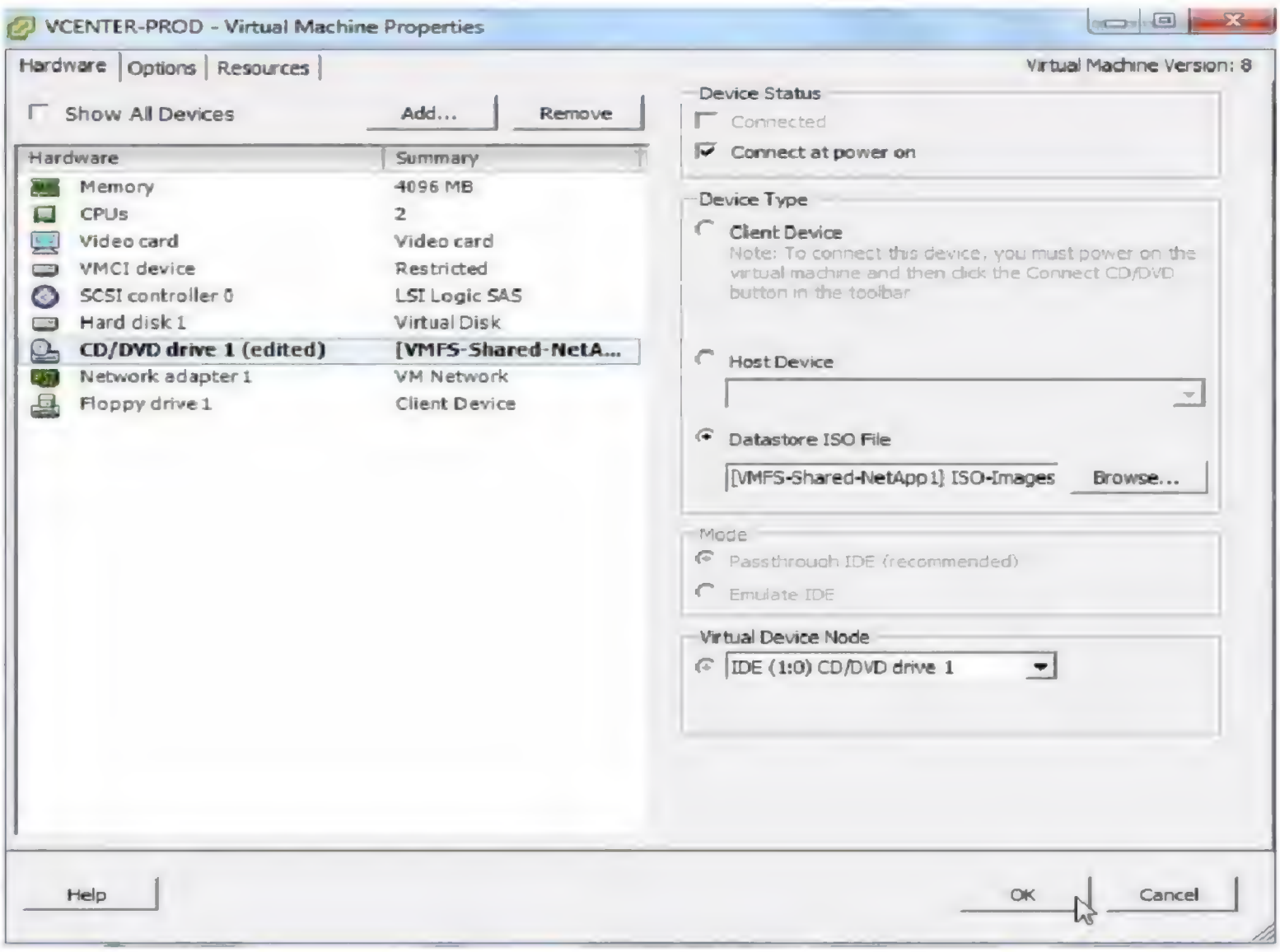
17. Select the datastore, open



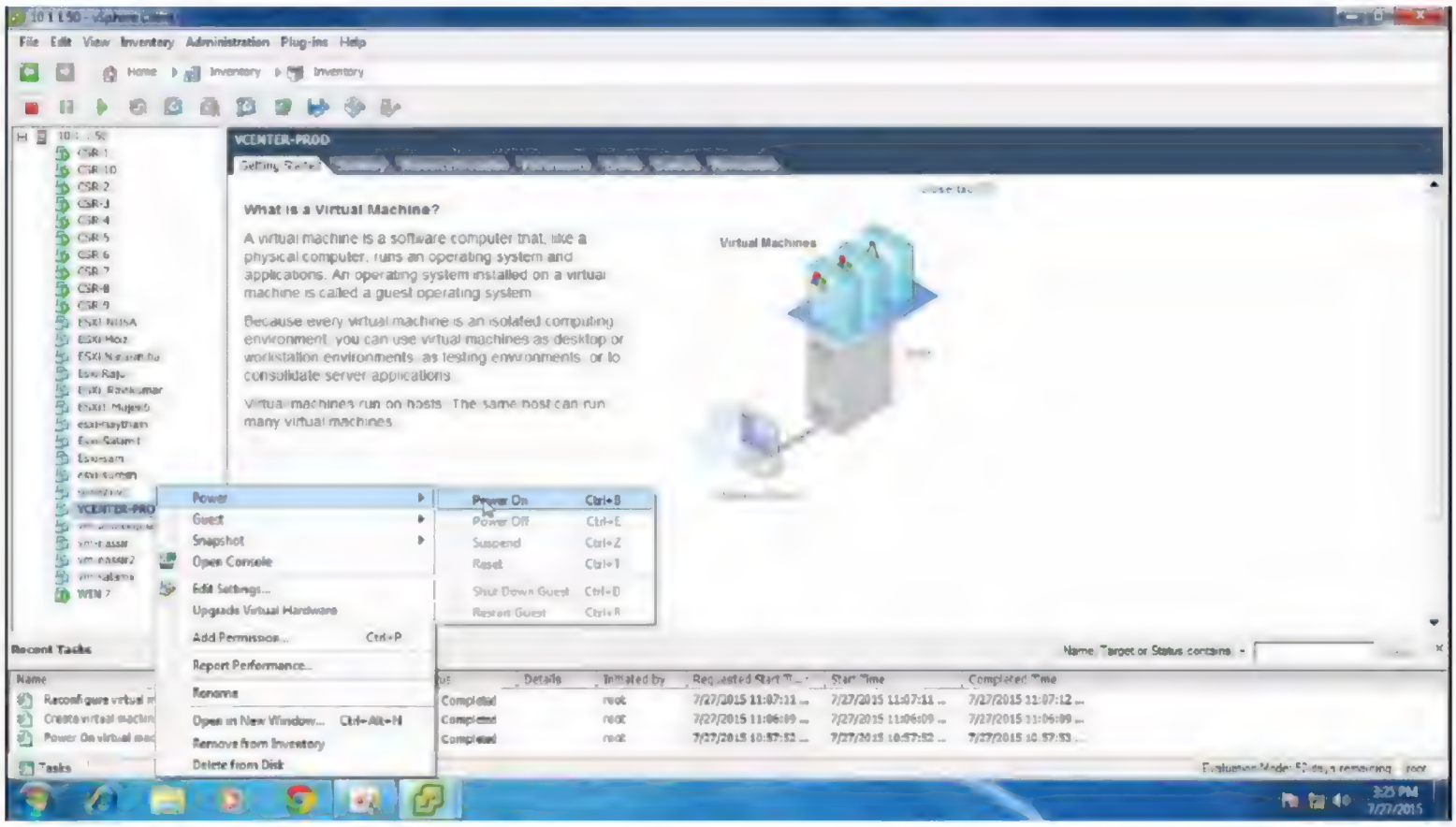
18. Select the ISO-images folder, open



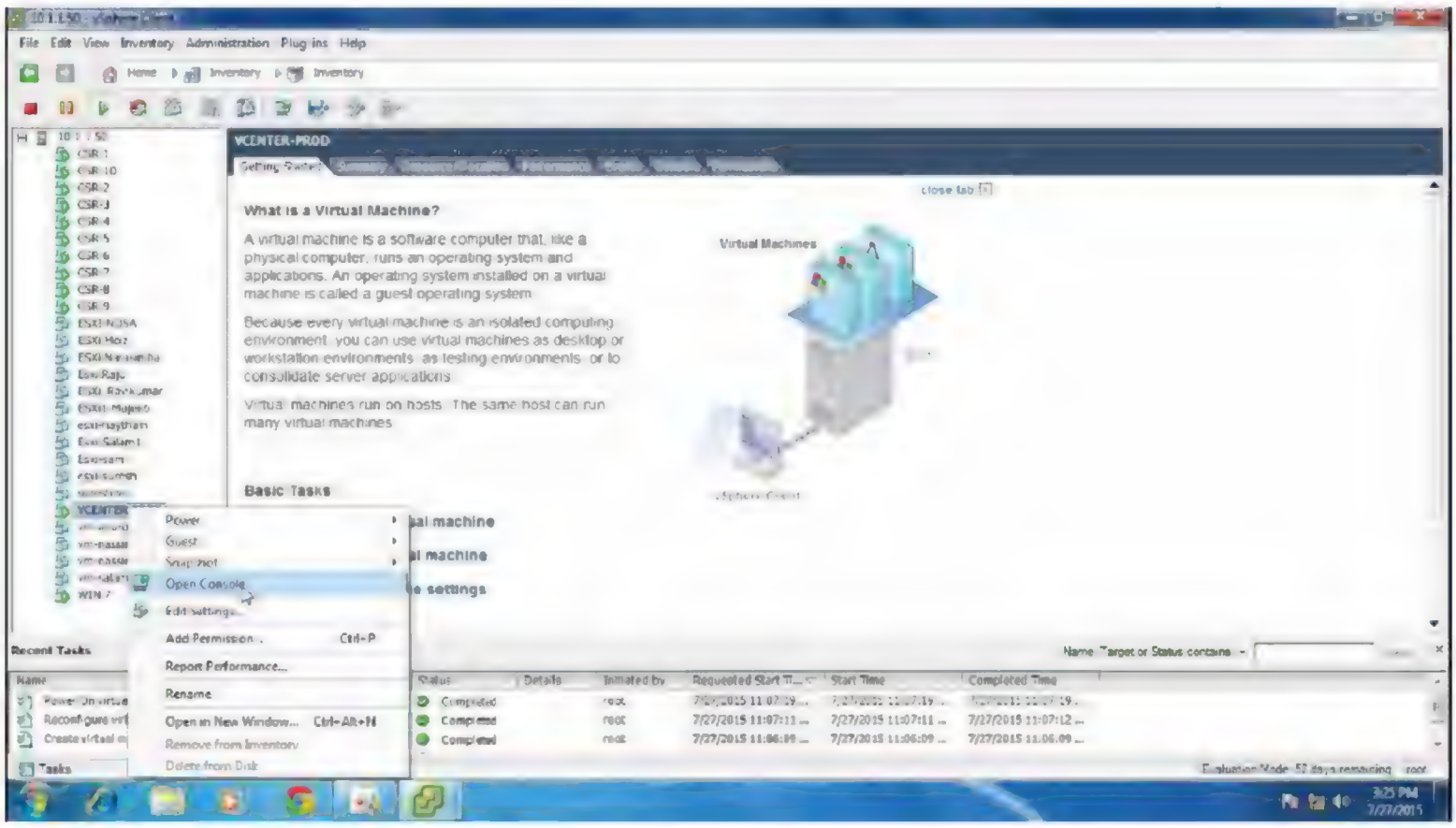
19. Select the ISO image of Guest OS, OK



20. OK to continue



21. Right click on the VM created, select power, and click Power on



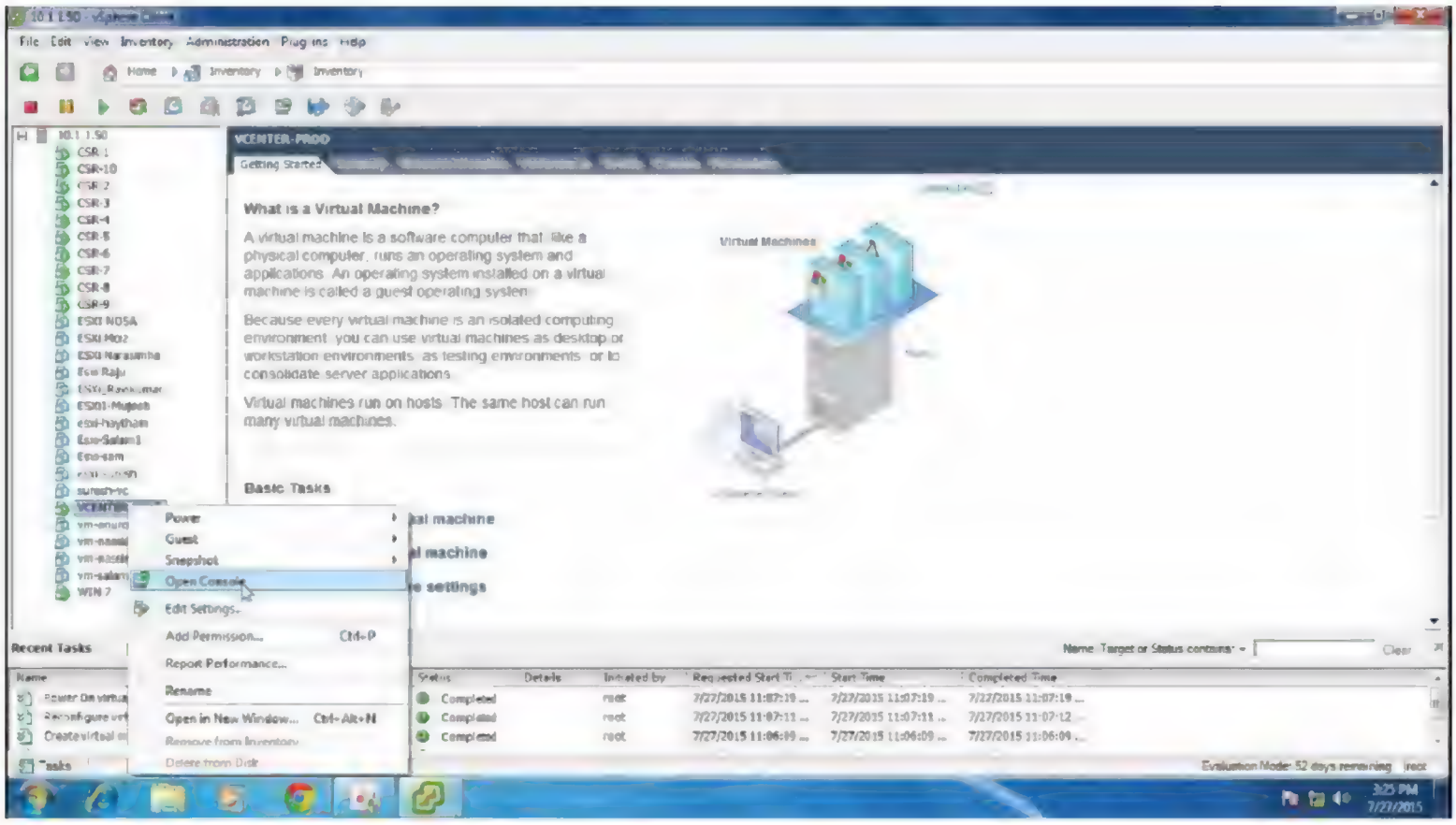
22. Right click VM, Click on Open Console

Installation of Guest OS starts, Complete the Guest OS installation

LAB-6: INSTALLING VMWARE TOOLS IN THE GUEST OS

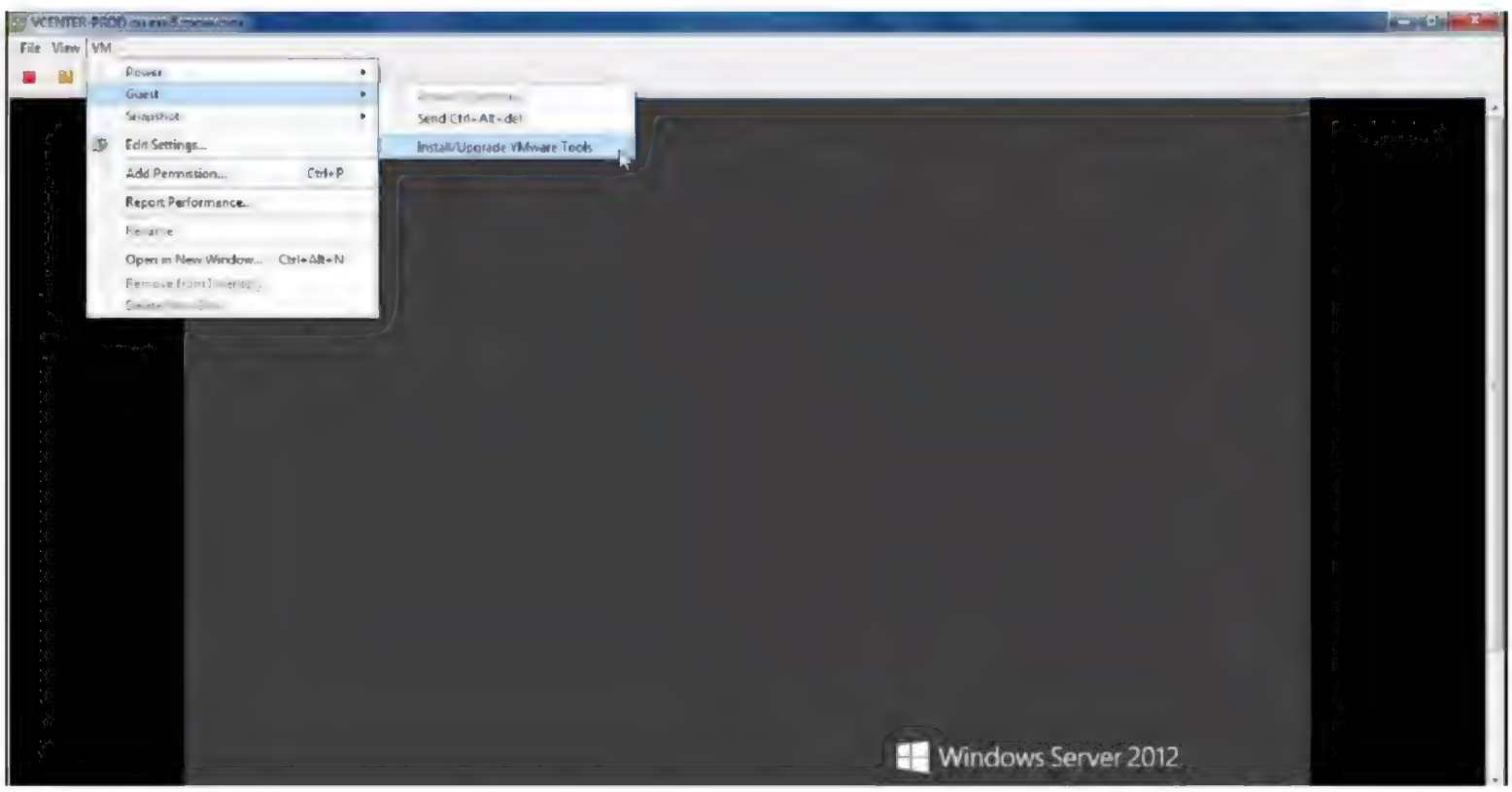
Objective:

To install VMware tools in the Guest OS

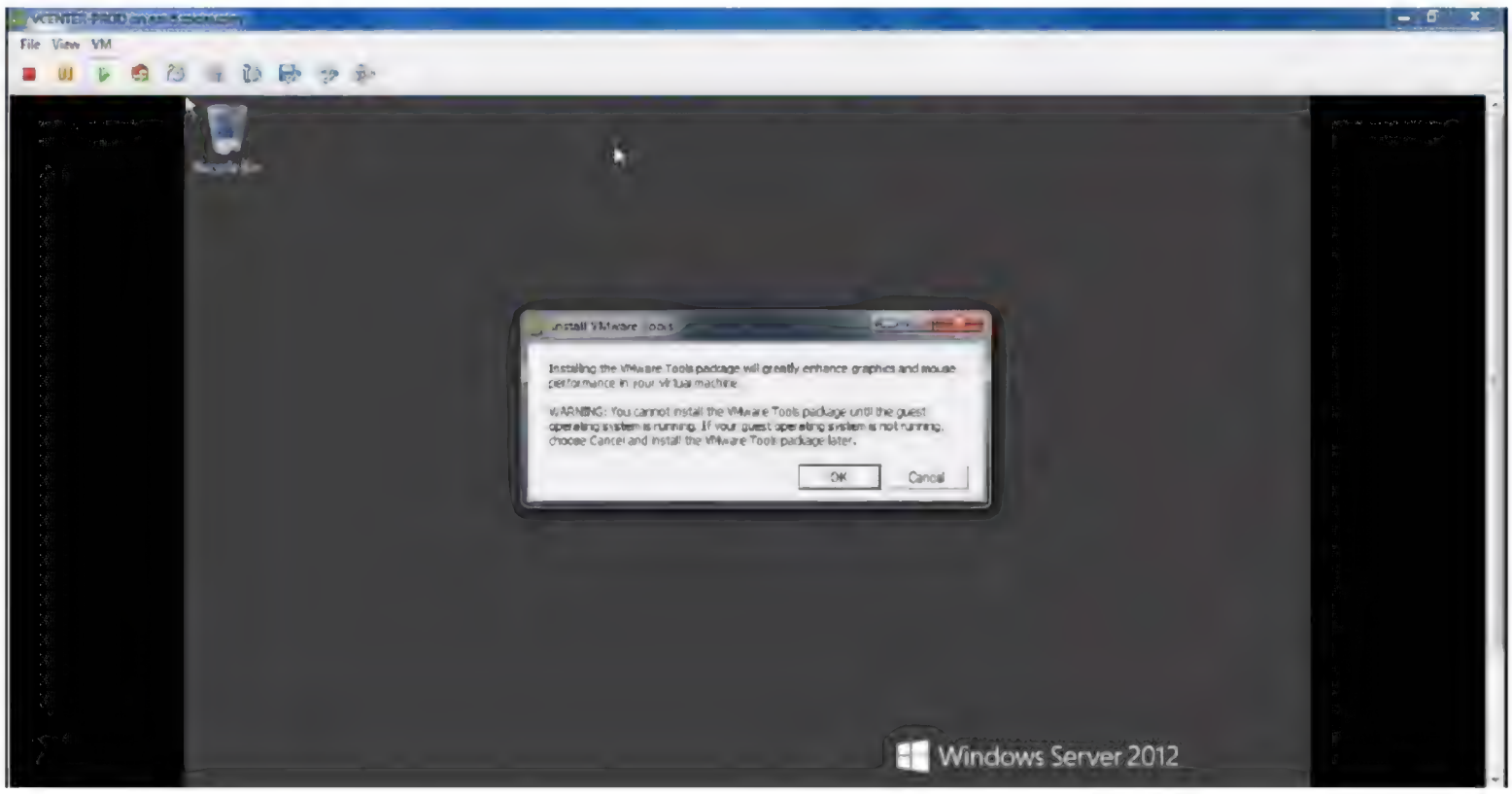


Steps:

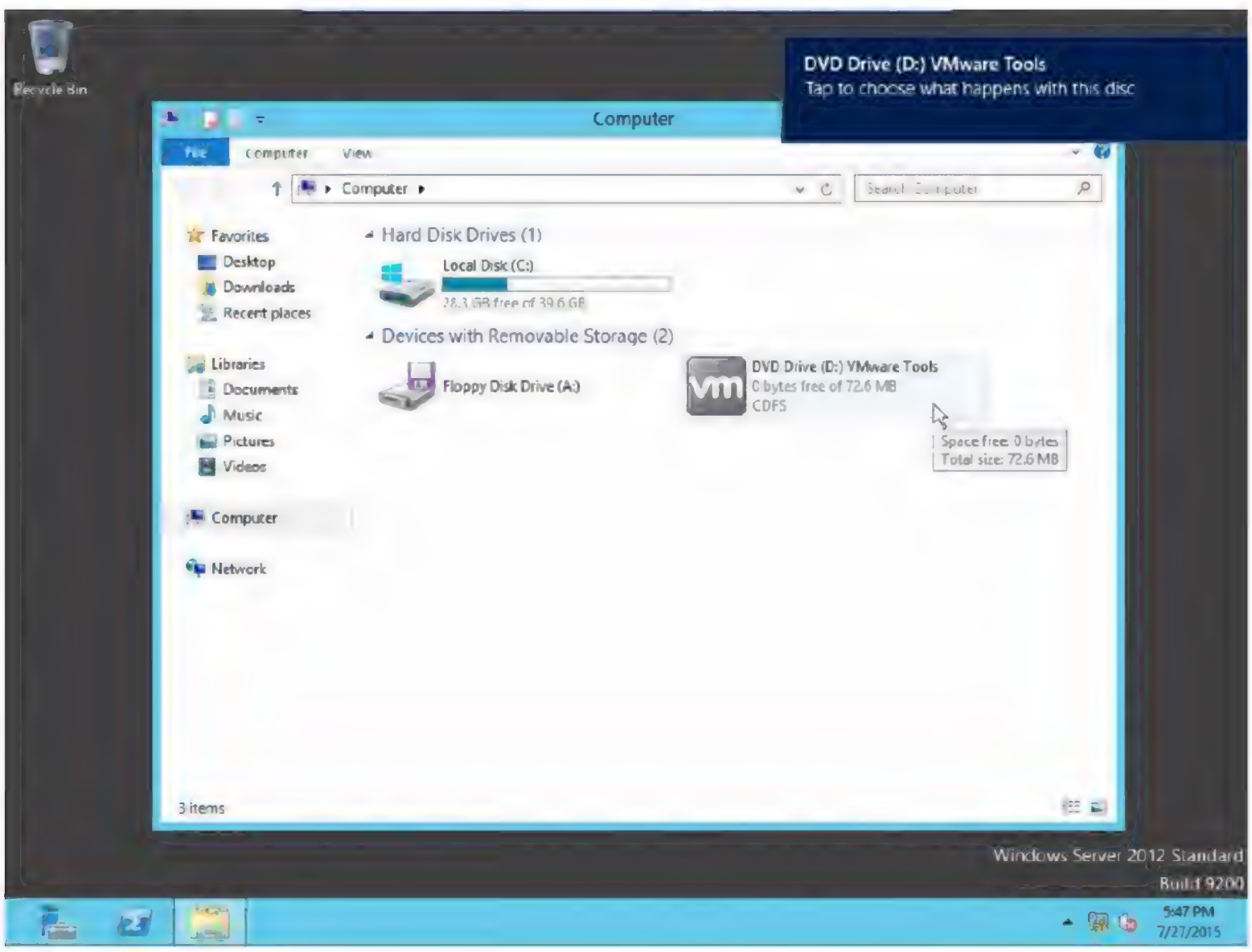
1. Right click the VM, Open Console



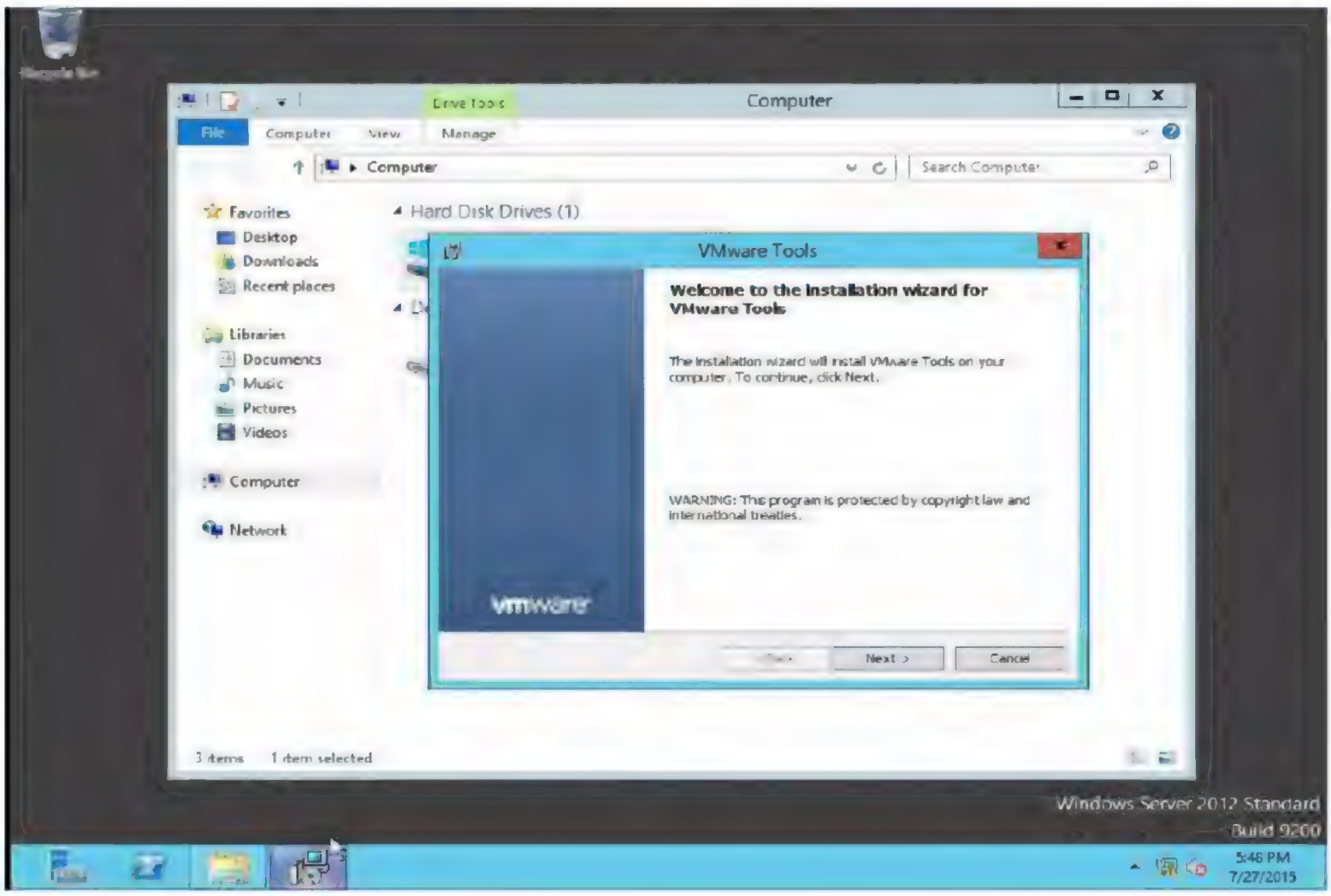
2. Select VM, Guest, Click on Install/Upgrade VMware Tools from VM Console



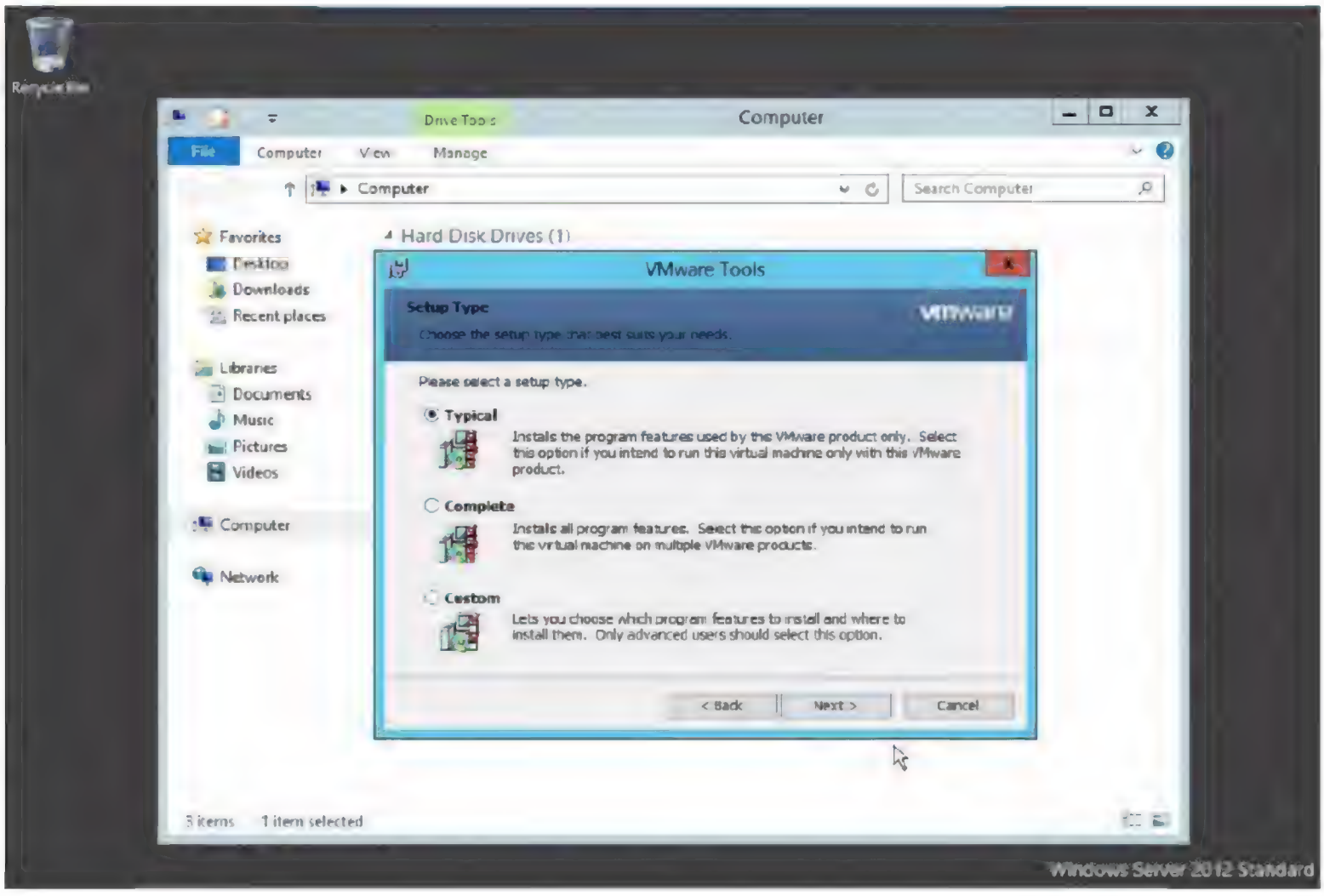
3. The "Install VMware Tools" message pops up, Click OK



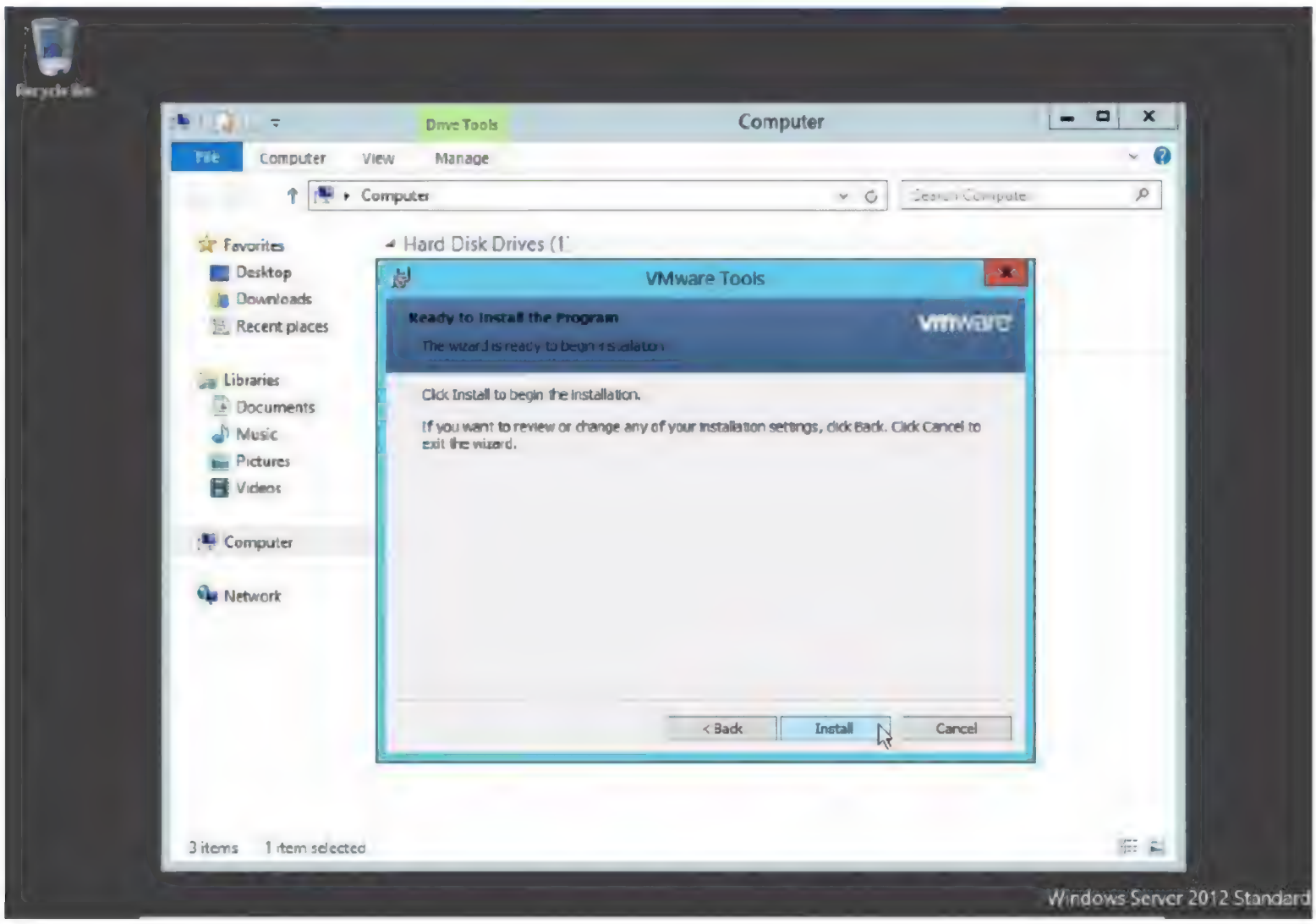
4. VMware Tools will be mounted on DVD Drive of your VM, double click on VMware Tools to start the installation



5. Next to continue

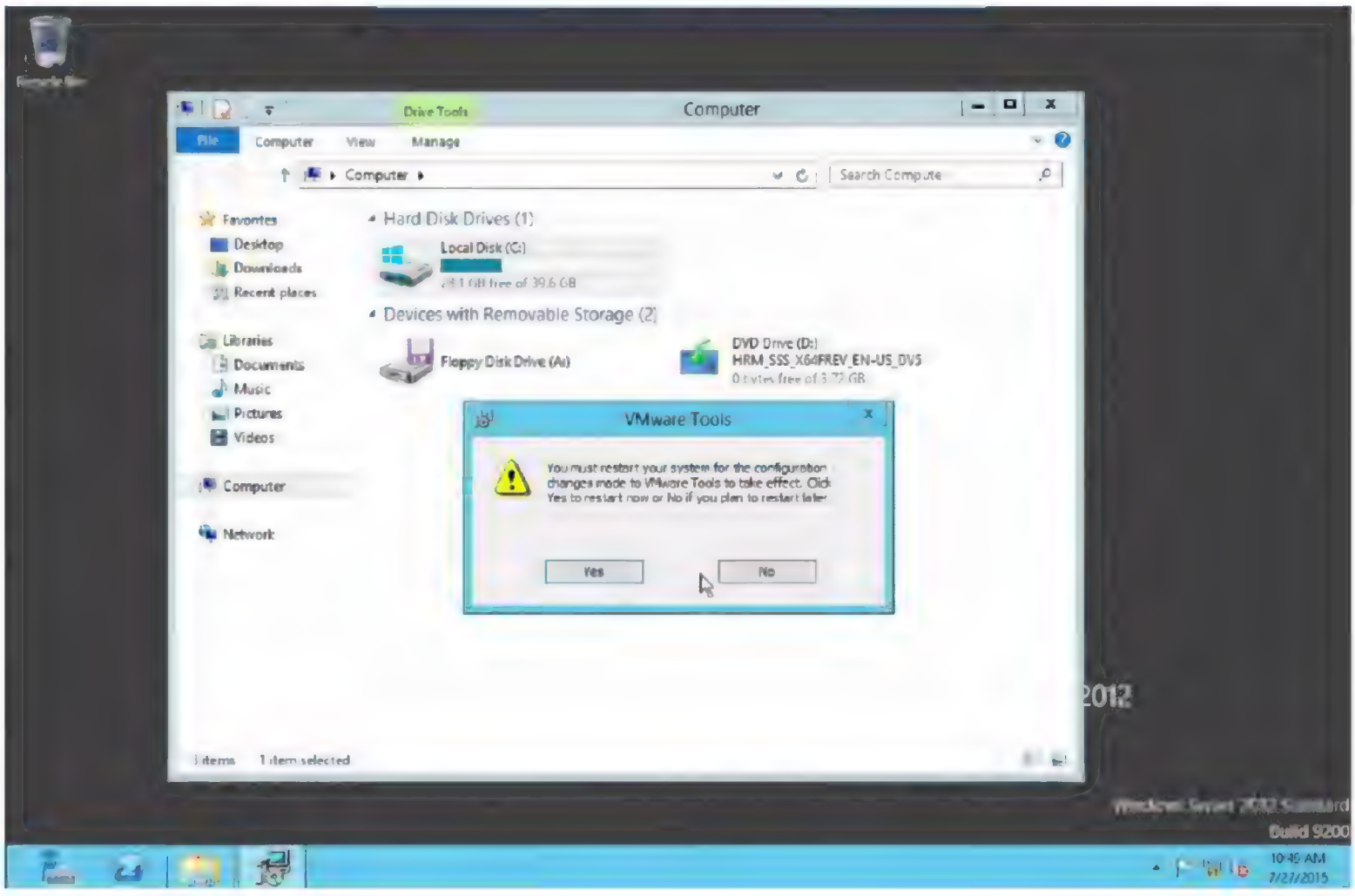


6. Select Typical, Next to continue



7. Install

8. Finish to complete the installation of VMware Tools



9. Click yes to restart the VM

LAB-7: CONFIGURATION ESXi HOST AS NTP CLIENT

Objective:

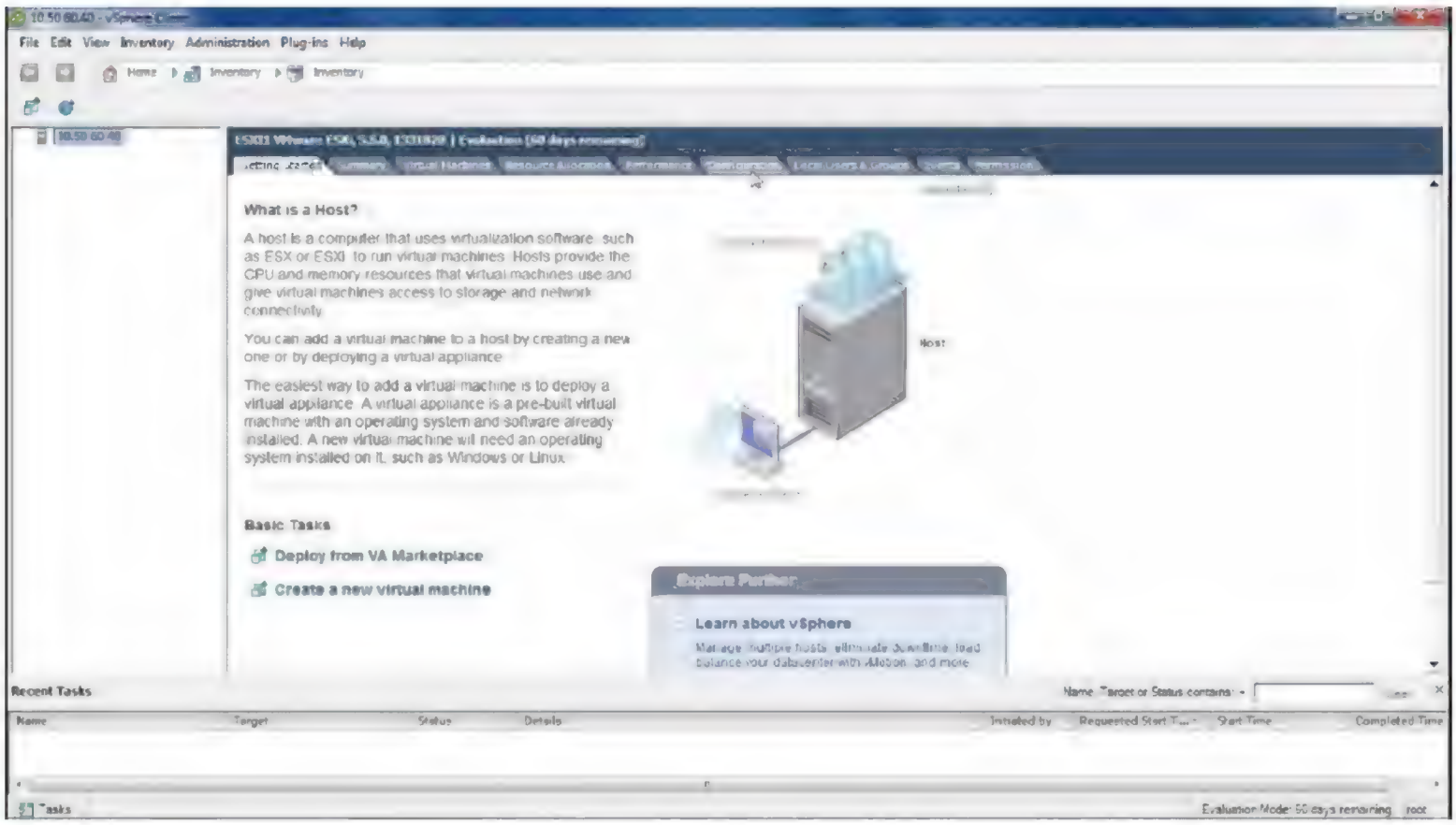
To Configure ESXi Host as an NTP Client

Tasks:

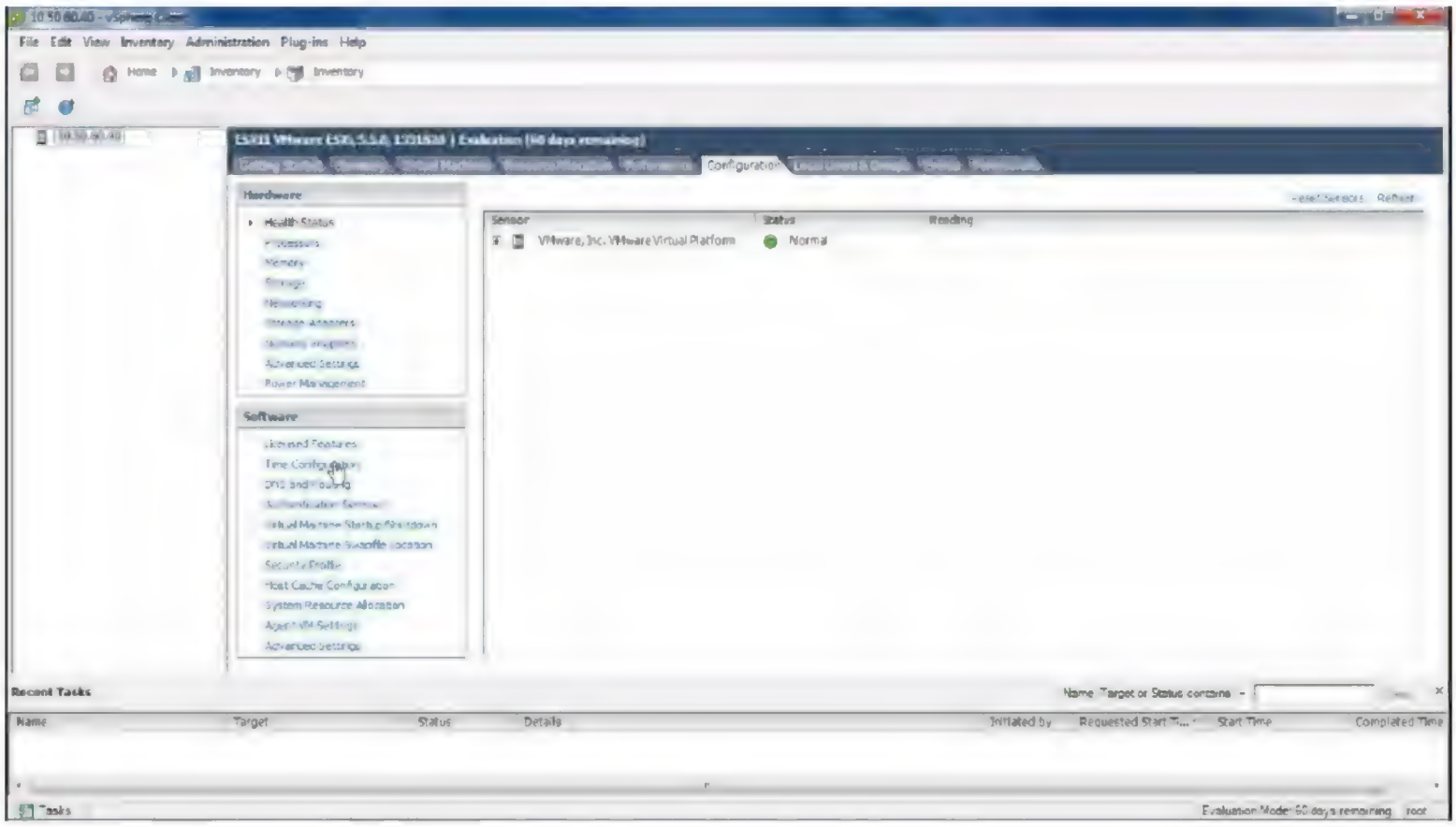
- Login to ESXi Host and
- Configure ESXi host as NTP Client

Steps:

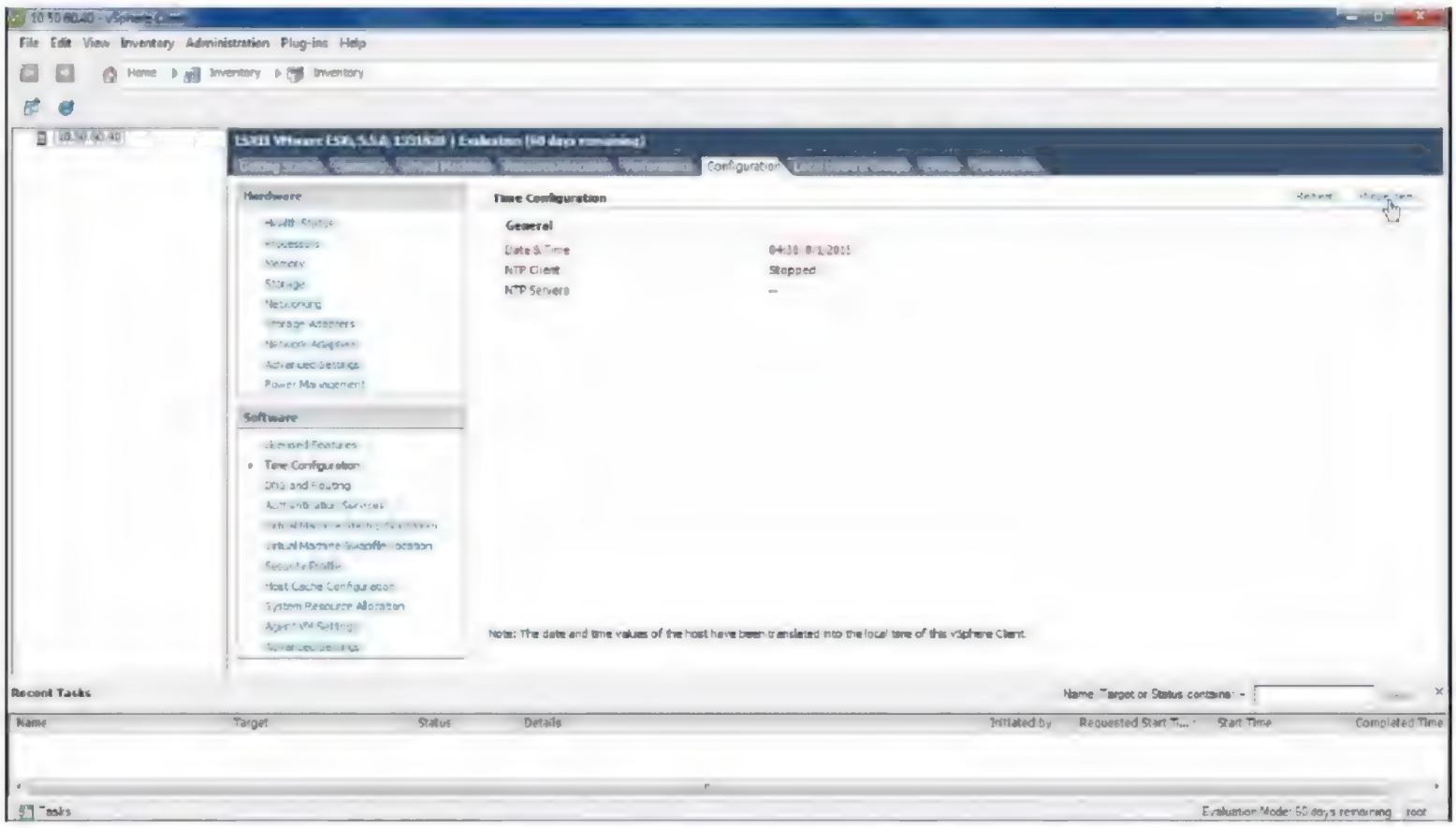
1. Login to ESXi Host



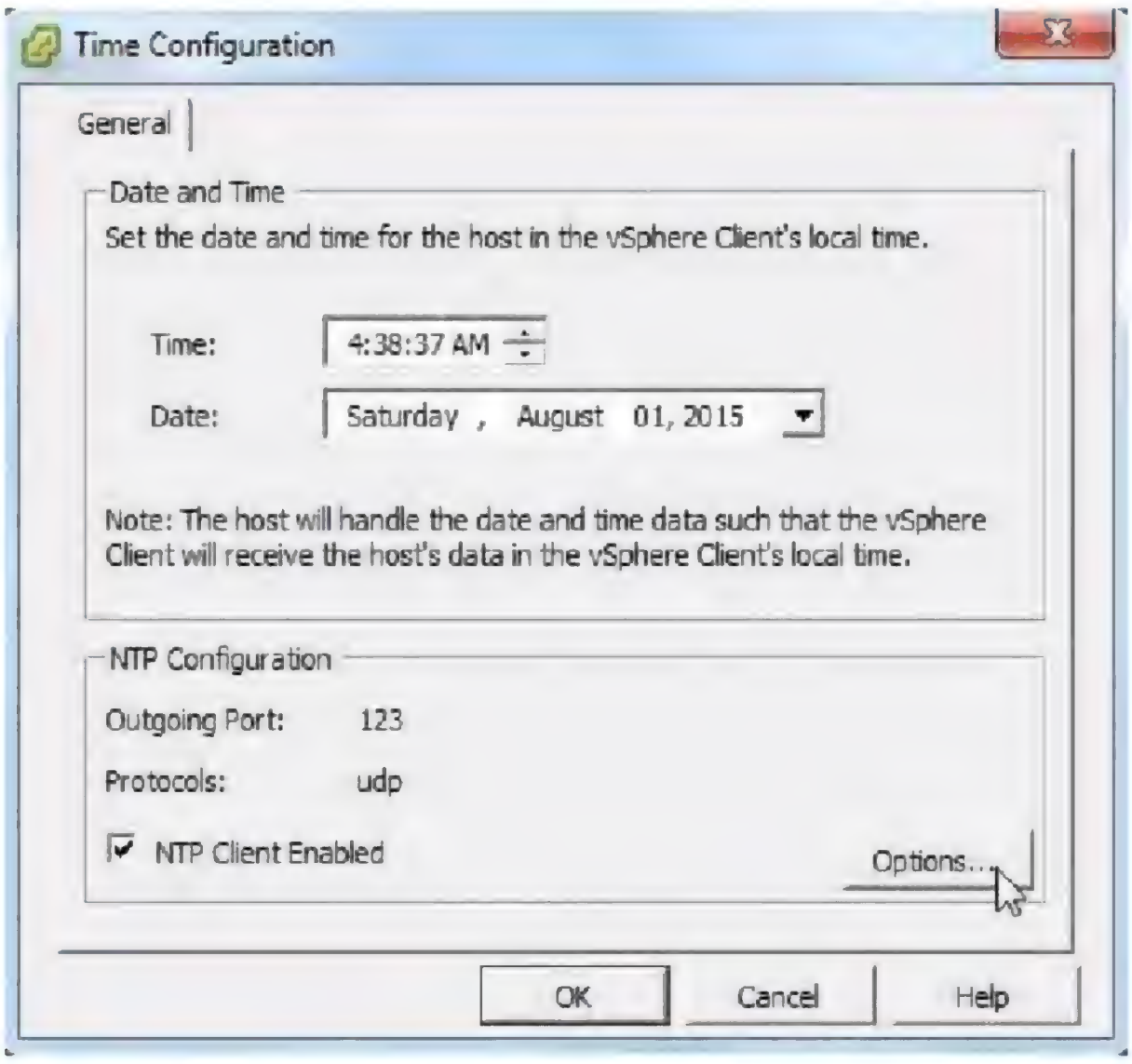
2. Click on configuration tab



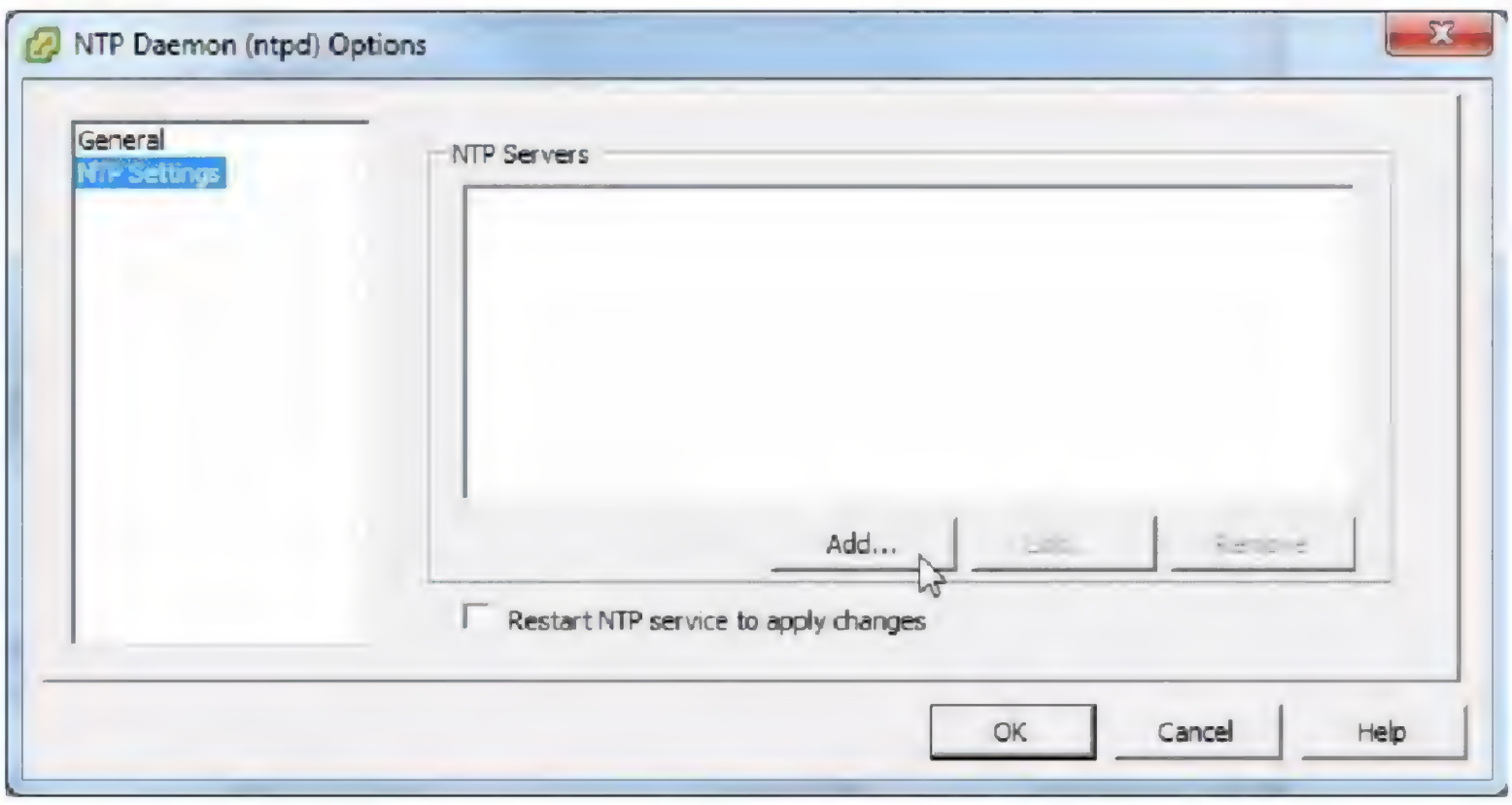
3. Click on Time Configuration



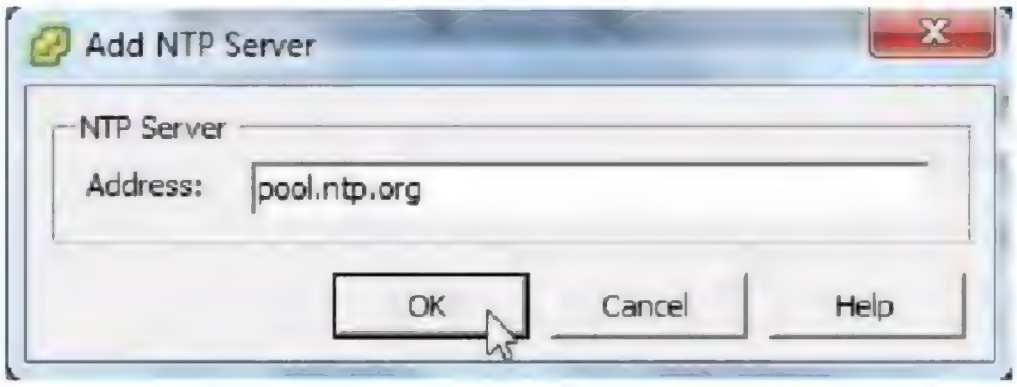
4. Click on Properties



5. Check NTP Client Enabled, Click on Options



6. Select NTP Settings, Click Add



7. Enter IP/FQDN of NTP Server, OK

8. Check Restart NTP service to apply changes, OK to complete the configuration

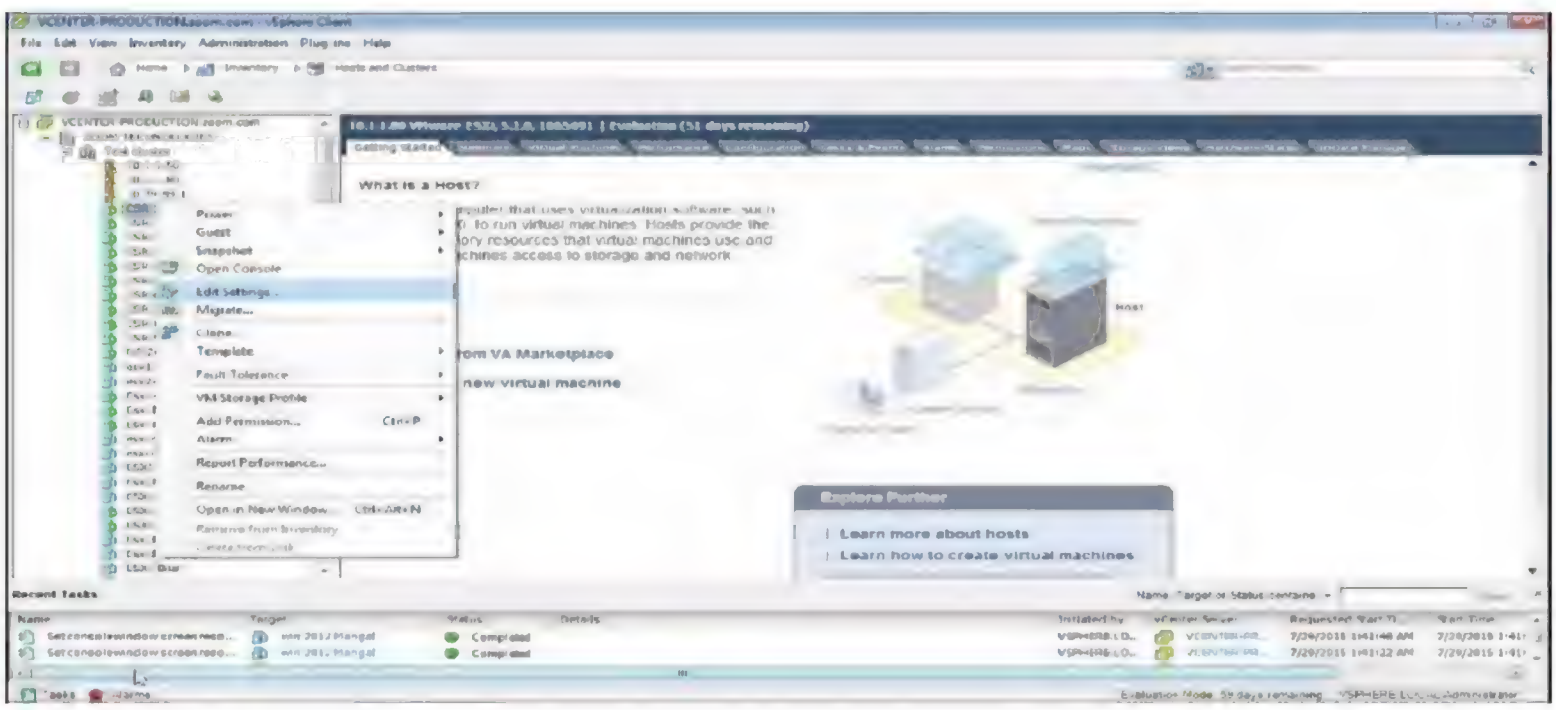
LAB-8: SYNCHRONIZING GUEST OS TIME WITH ESXi HOST

Objective:

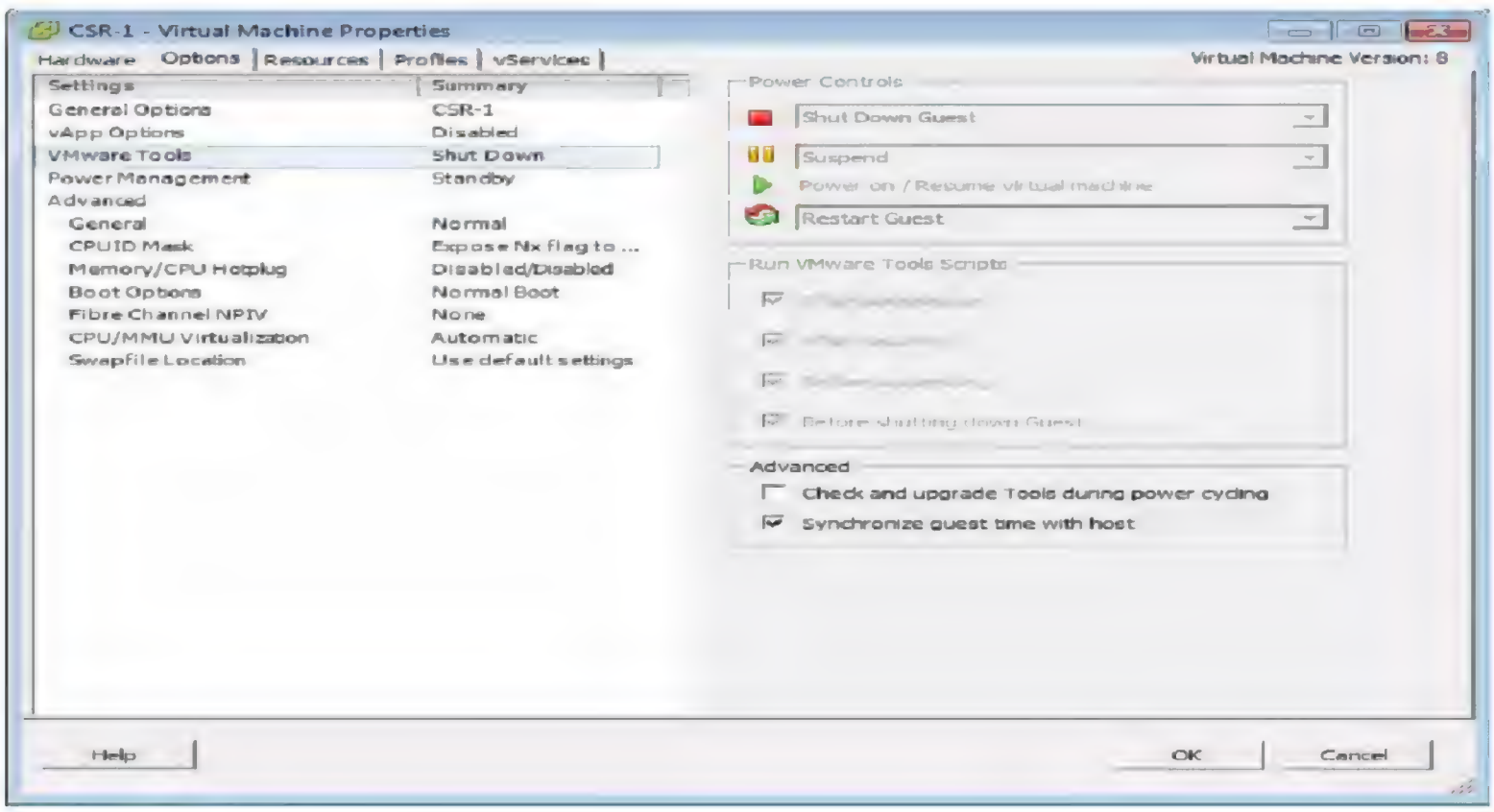
To synchronize the guest operating system time with the ESXi Host

Steps:

1. Login to ESXi Host



2. Right Click on VM, Edit Settings



3. Select Options tab, Select VMware Tools, check the box Synchronize guest time with host, OK to complete

LAB-9: INSTALLING vCENTER SERVER

Objective:

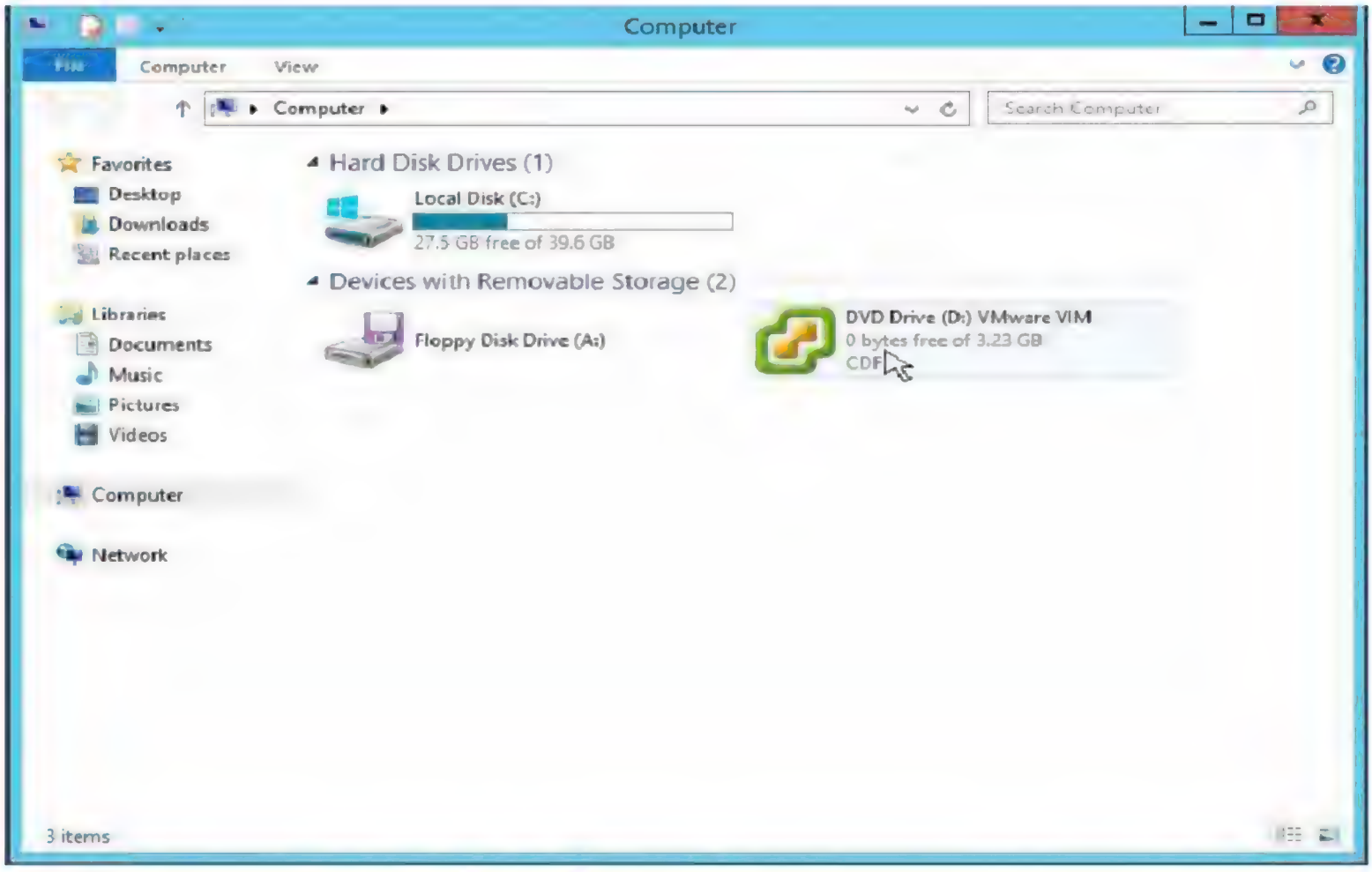
To Install vCenter Server

Prerequisites:

- Virtual machine with minimum 2CPU, 4GB RAM
- Windows server 2008R2/2012 installed
- Member of the domain
- ISO image of vCenter Server

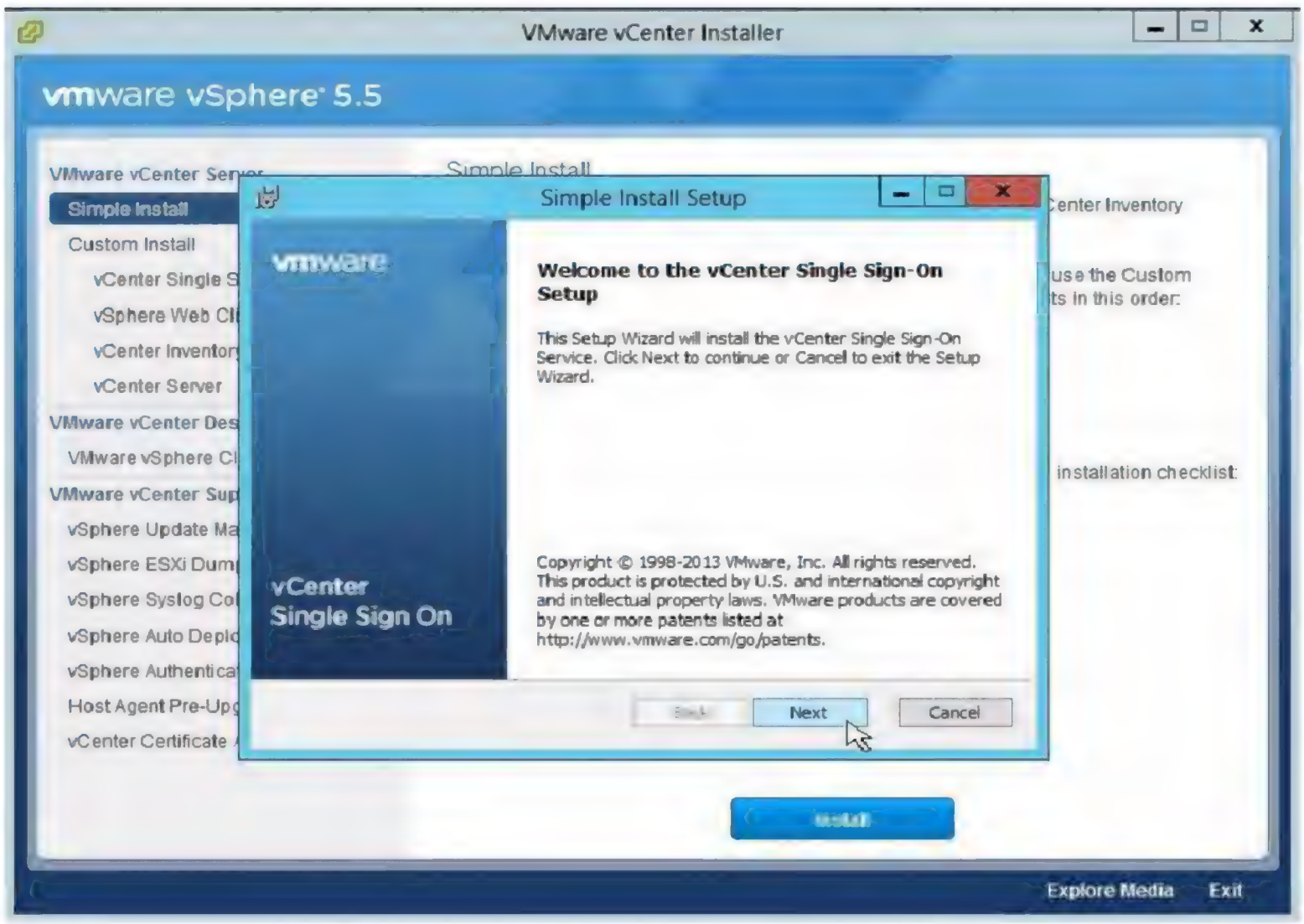
Steps:

1. Mount the ISO image of vCenter Server on the VM

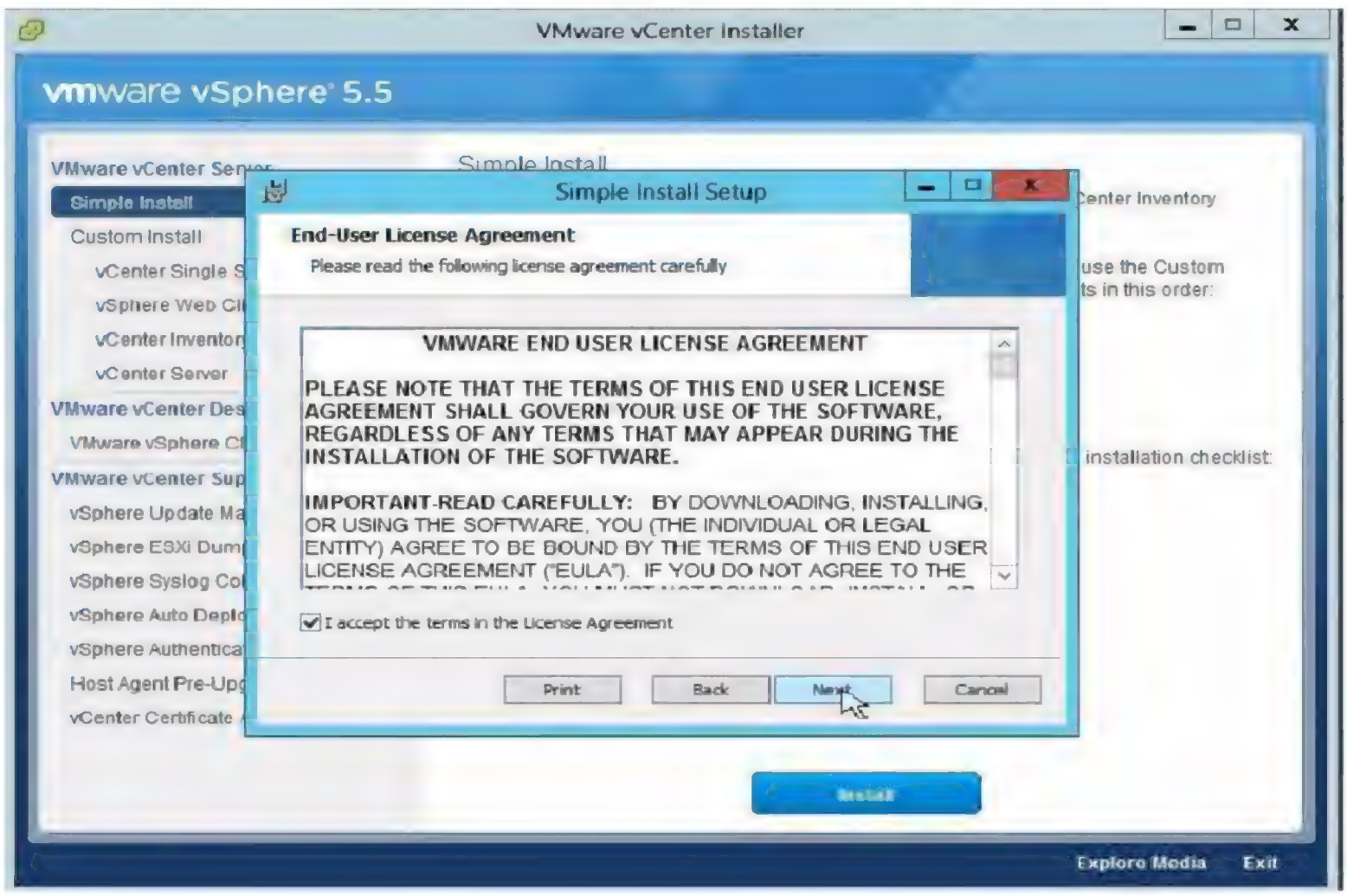


2. Double click the image mounted on DVD drive

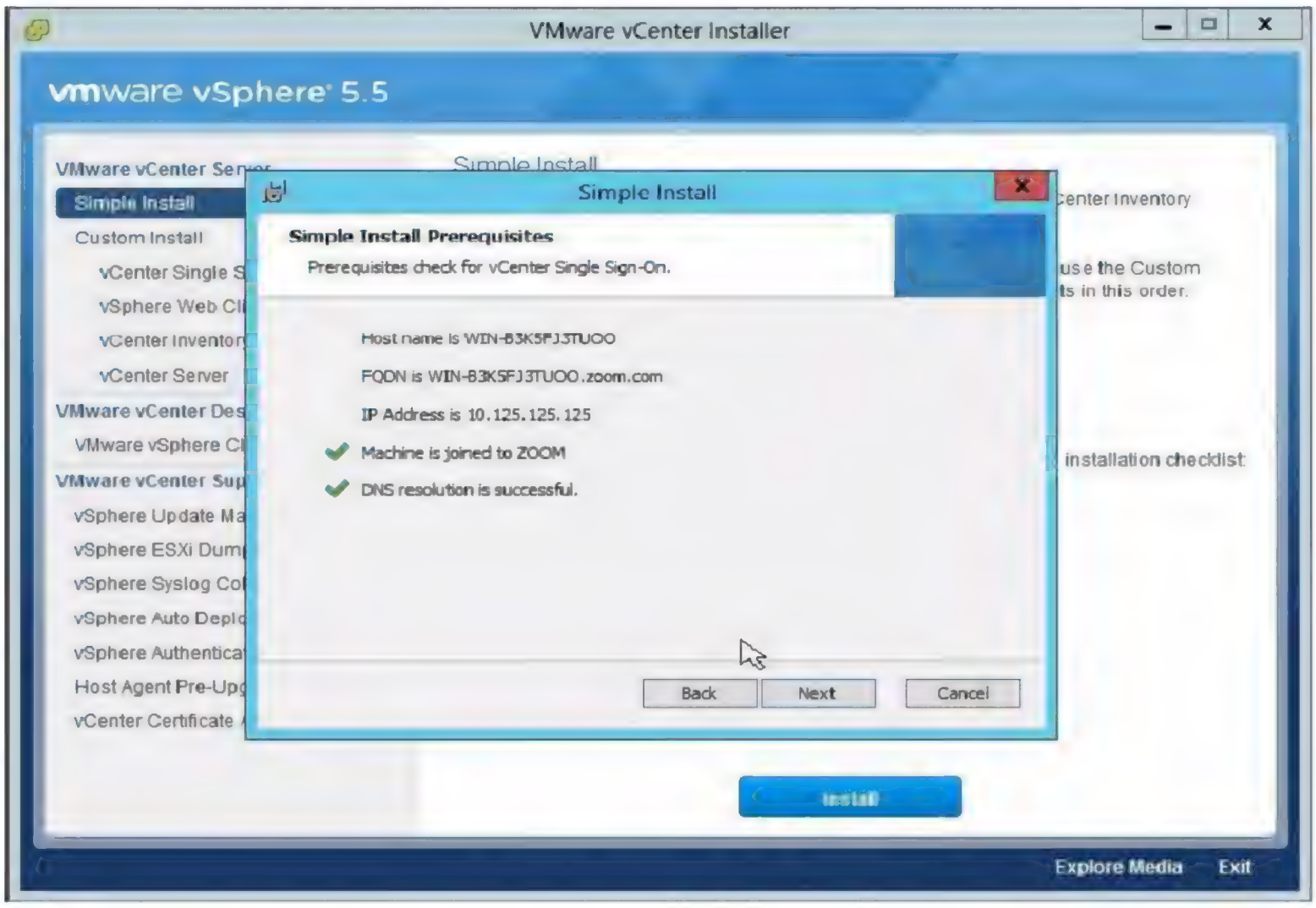
3. Select Simple Install, Click on Install



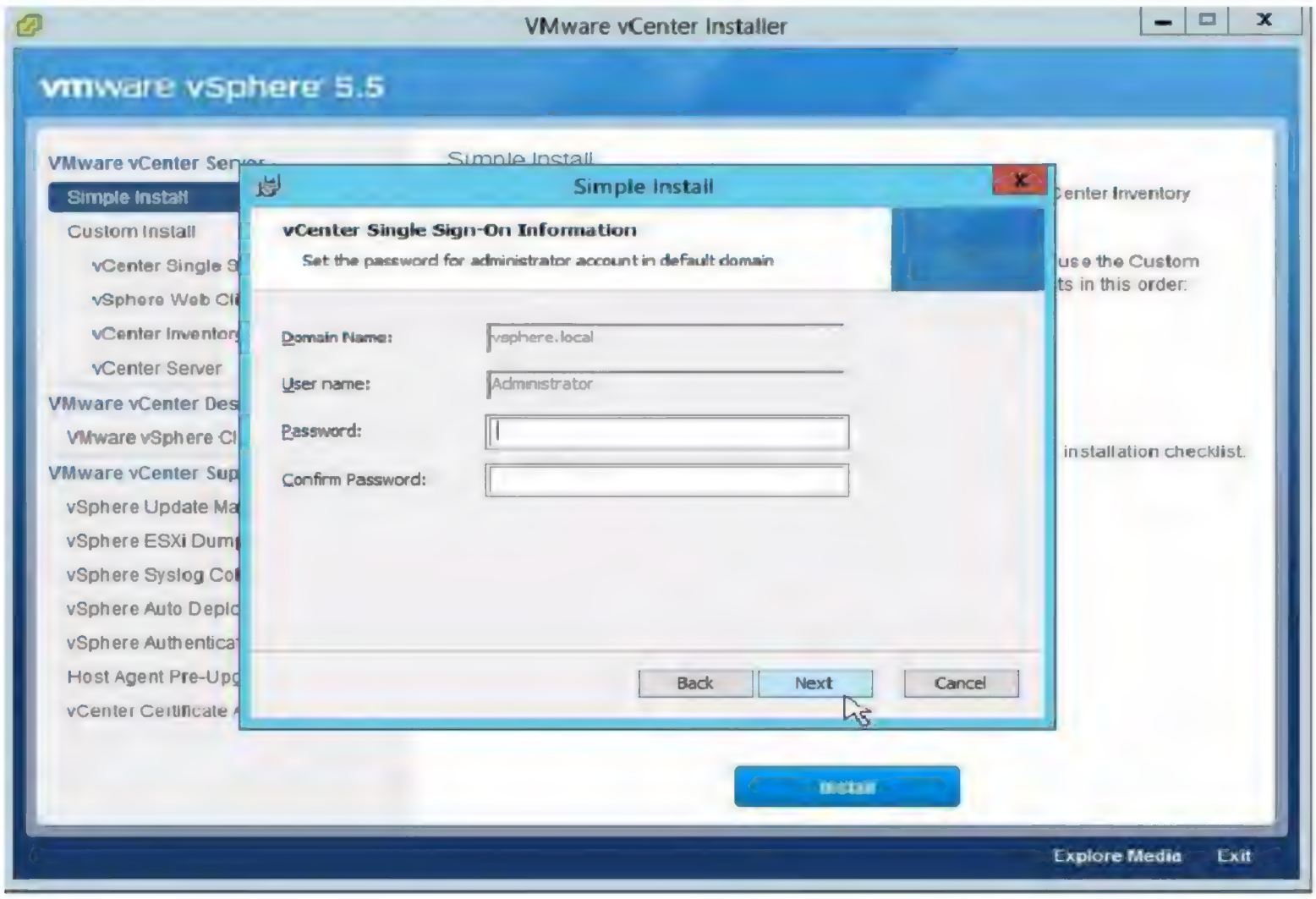
4. Next to continue



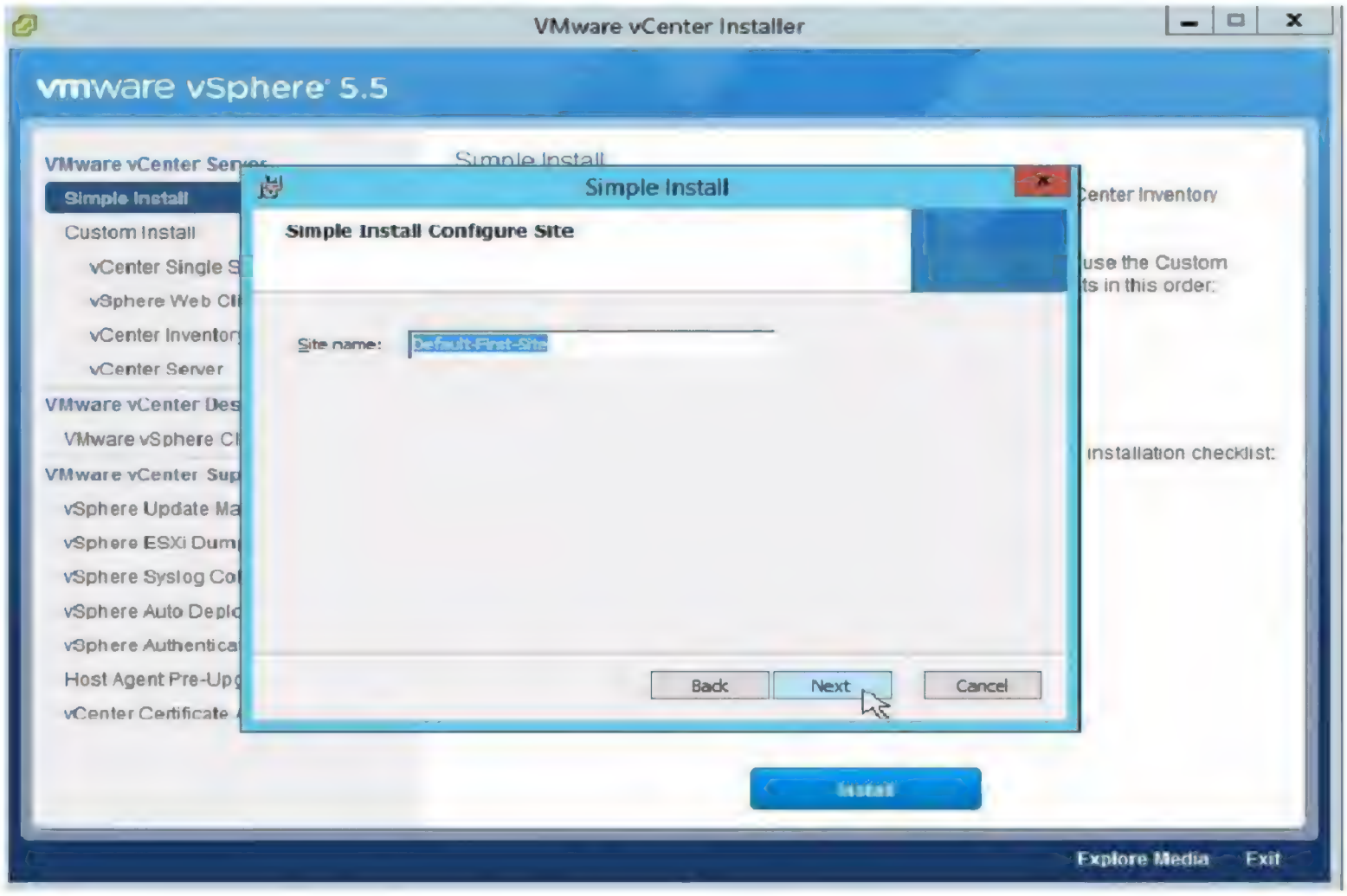
5. Accept the End-User License Agreement, Next to continue



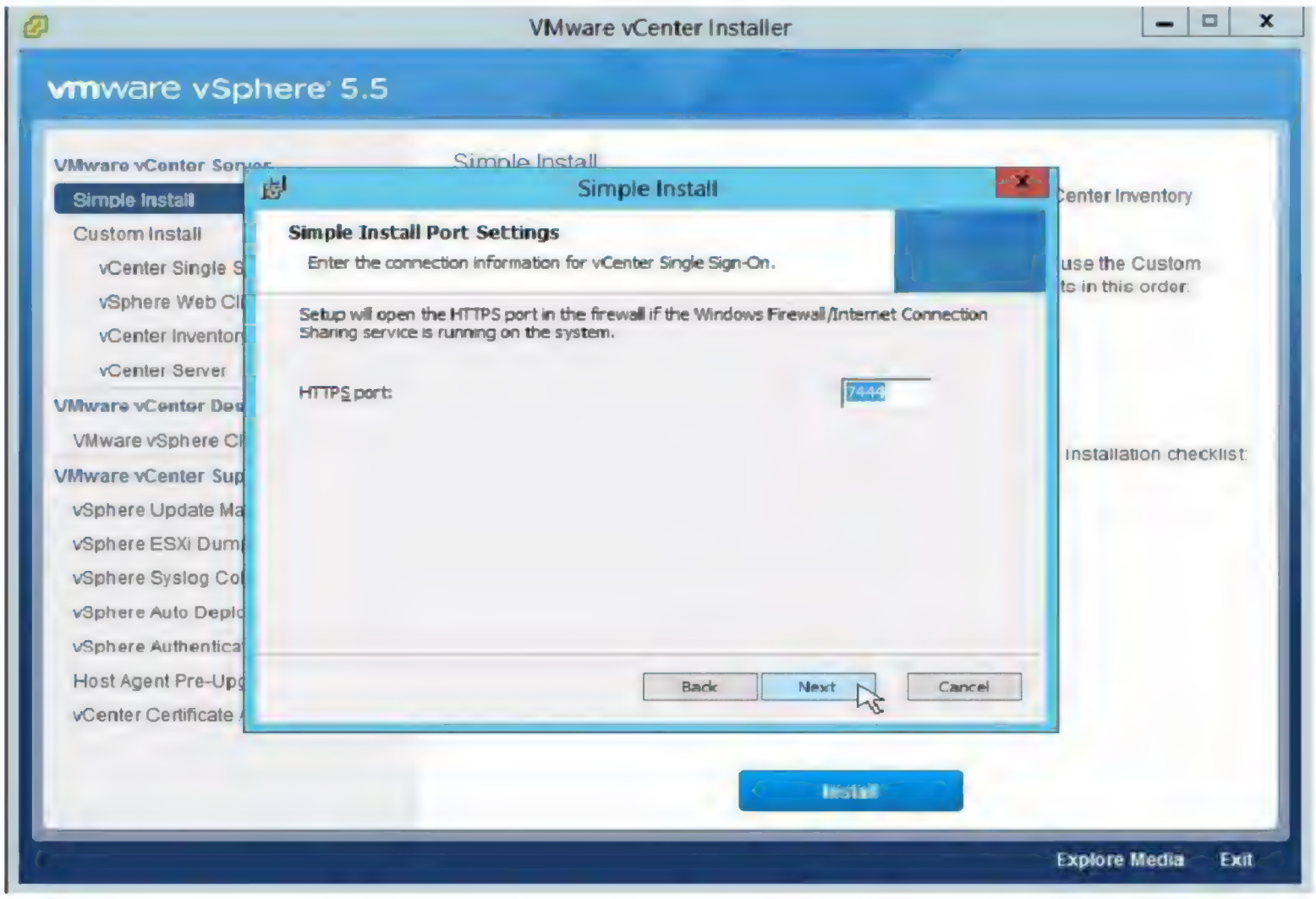
6. Next to continue



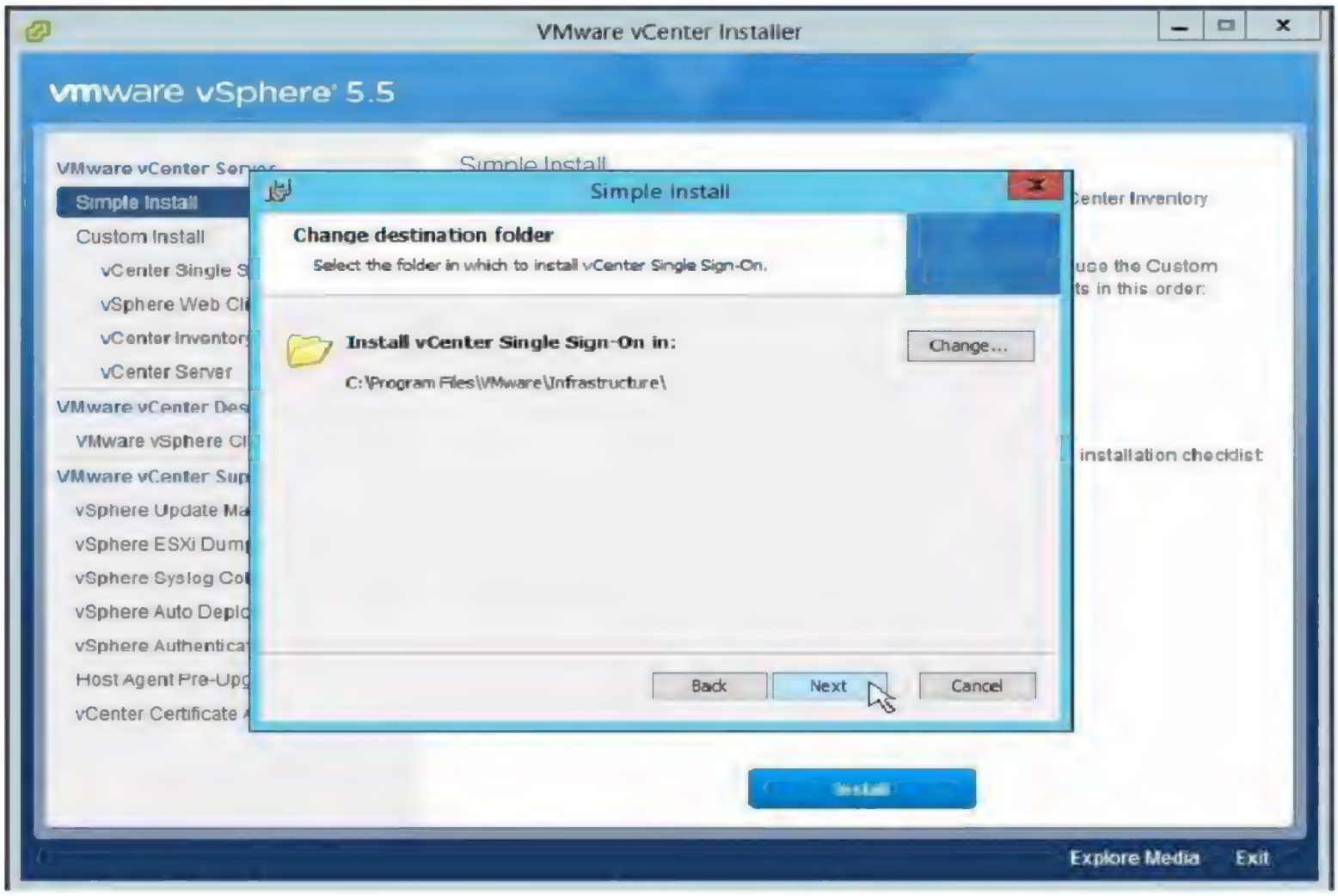
7. Set the password for SSO administrator account, Next to continue



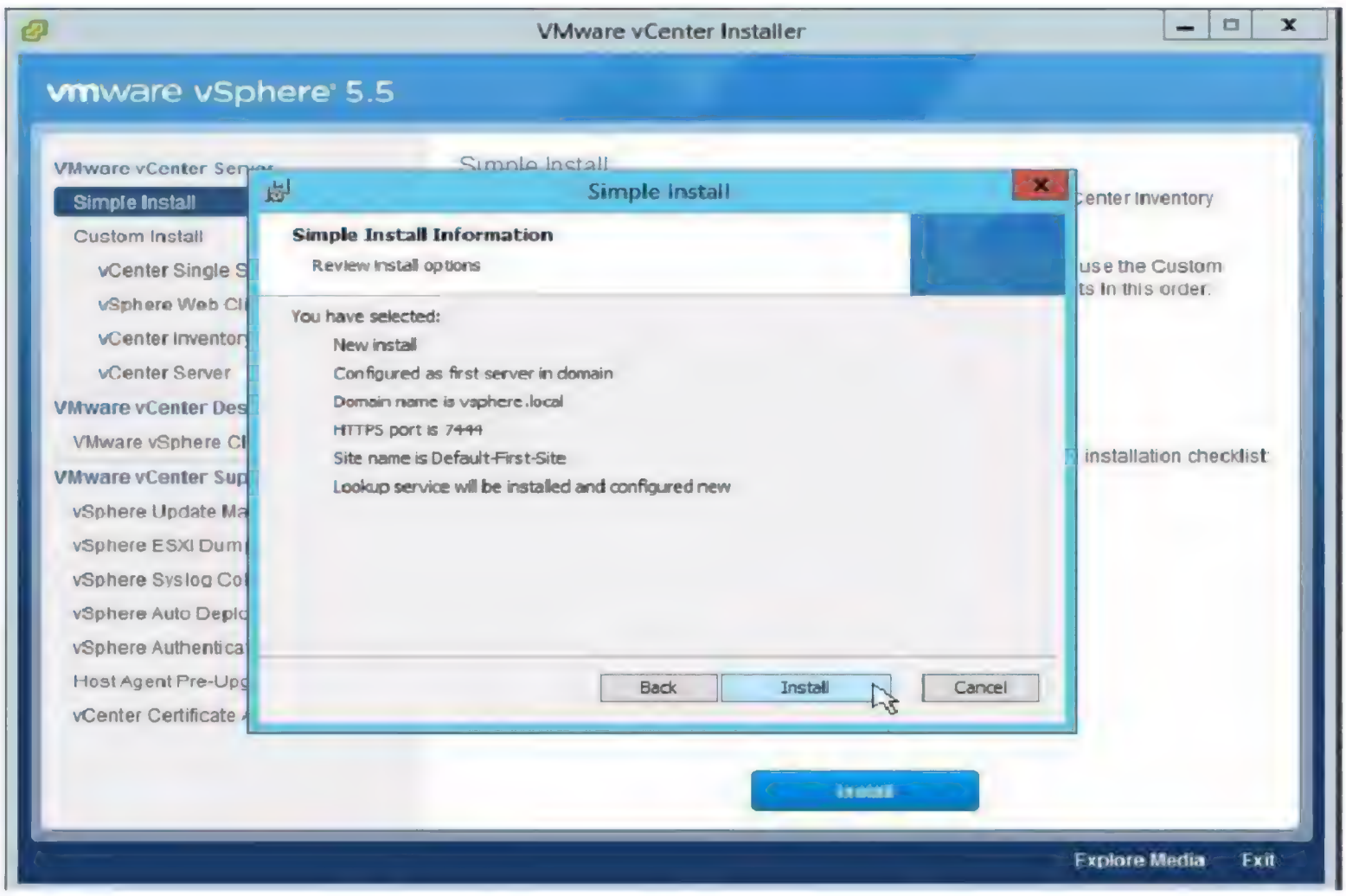
8. Next to continue



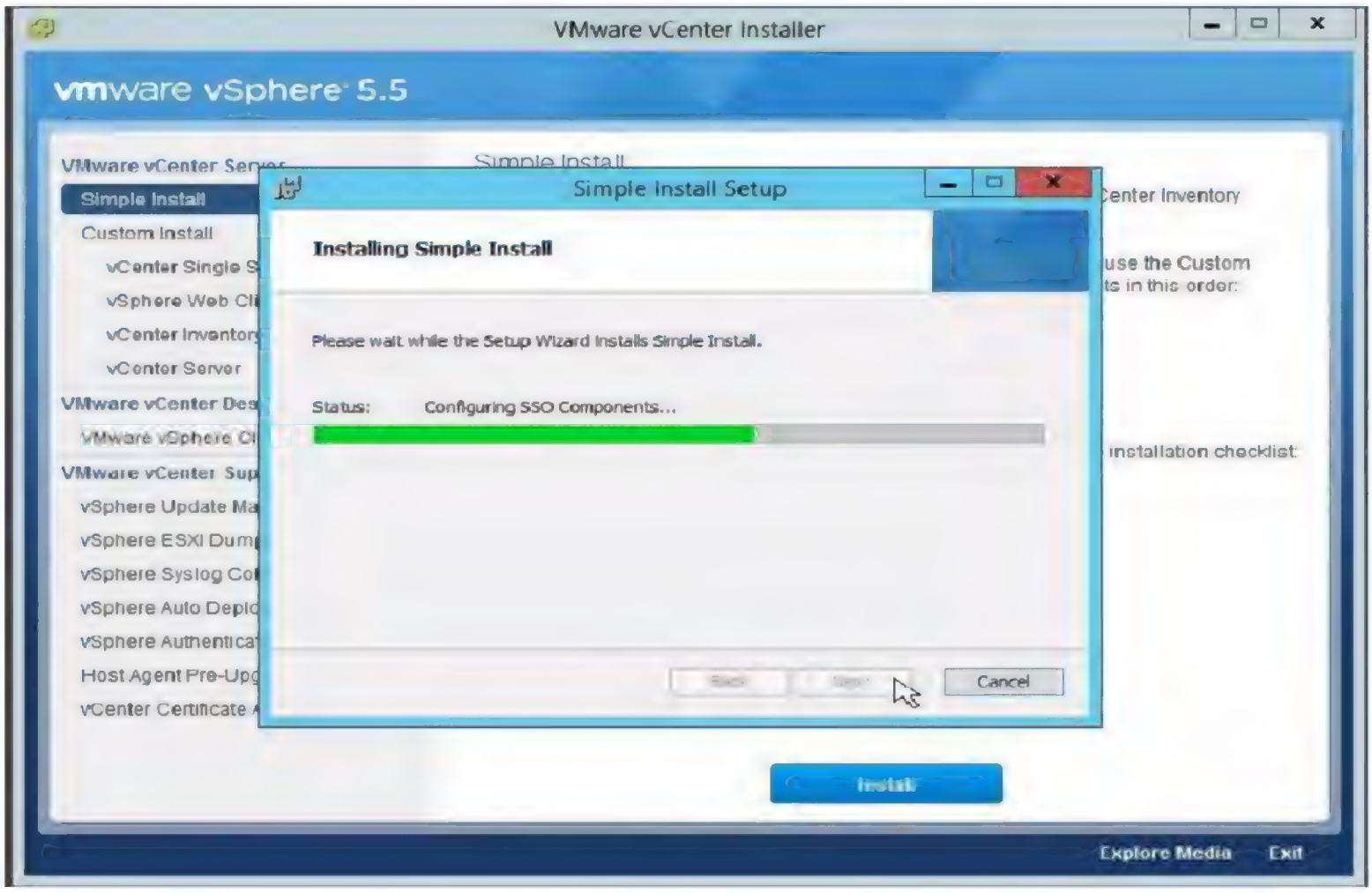
9. Accept the default port, Next to continue



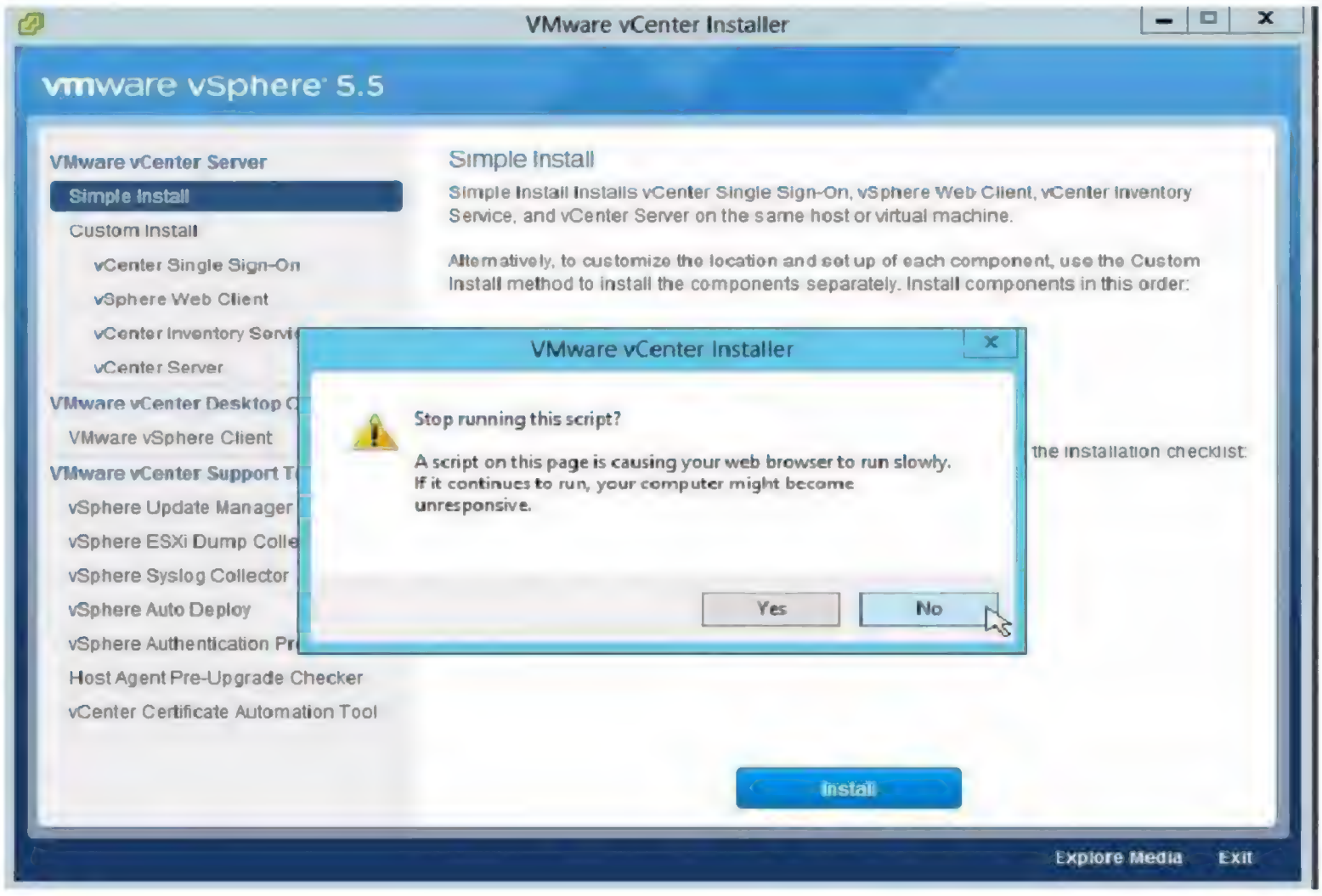
10. Accept the default destination, Next to continue



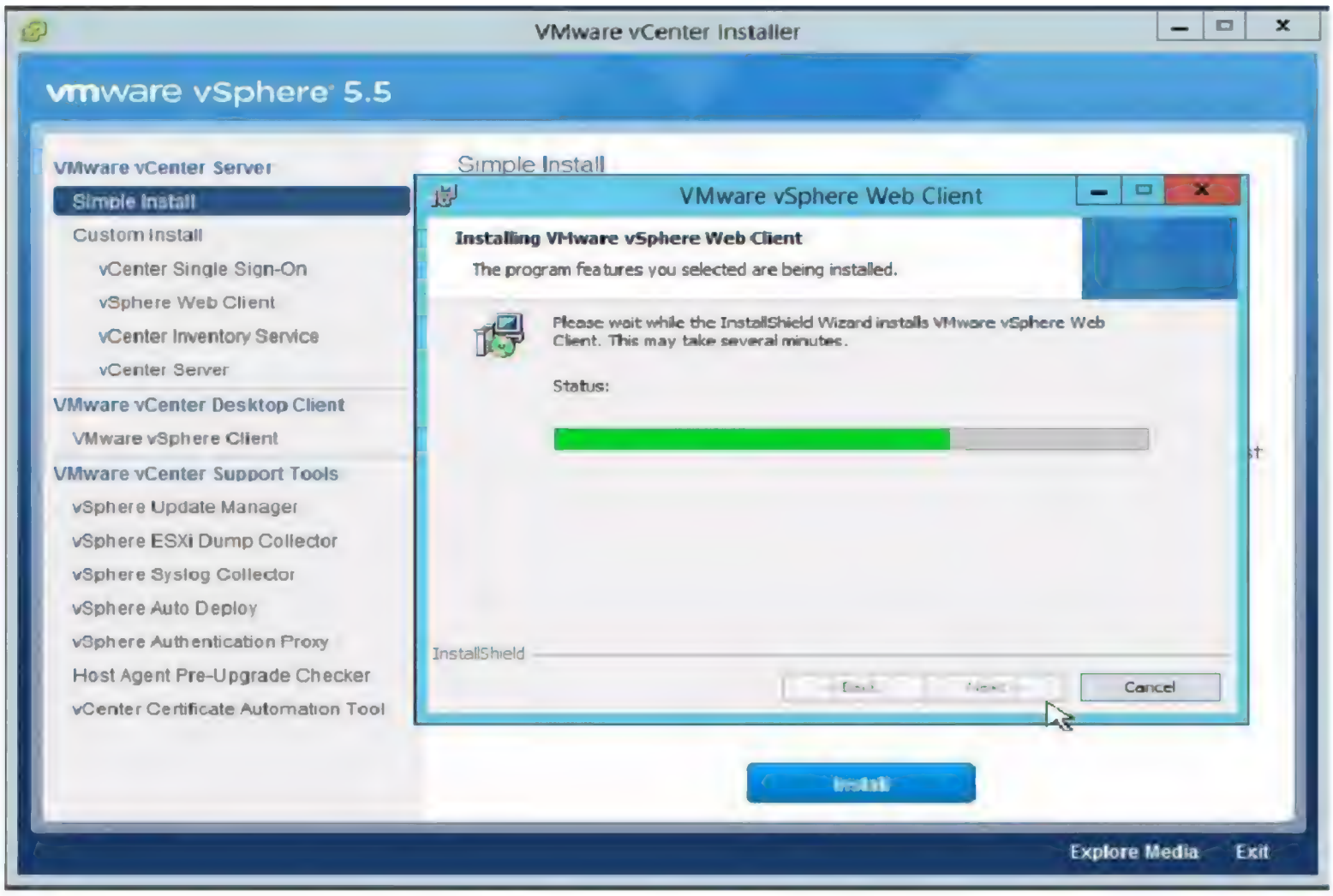
11. Install



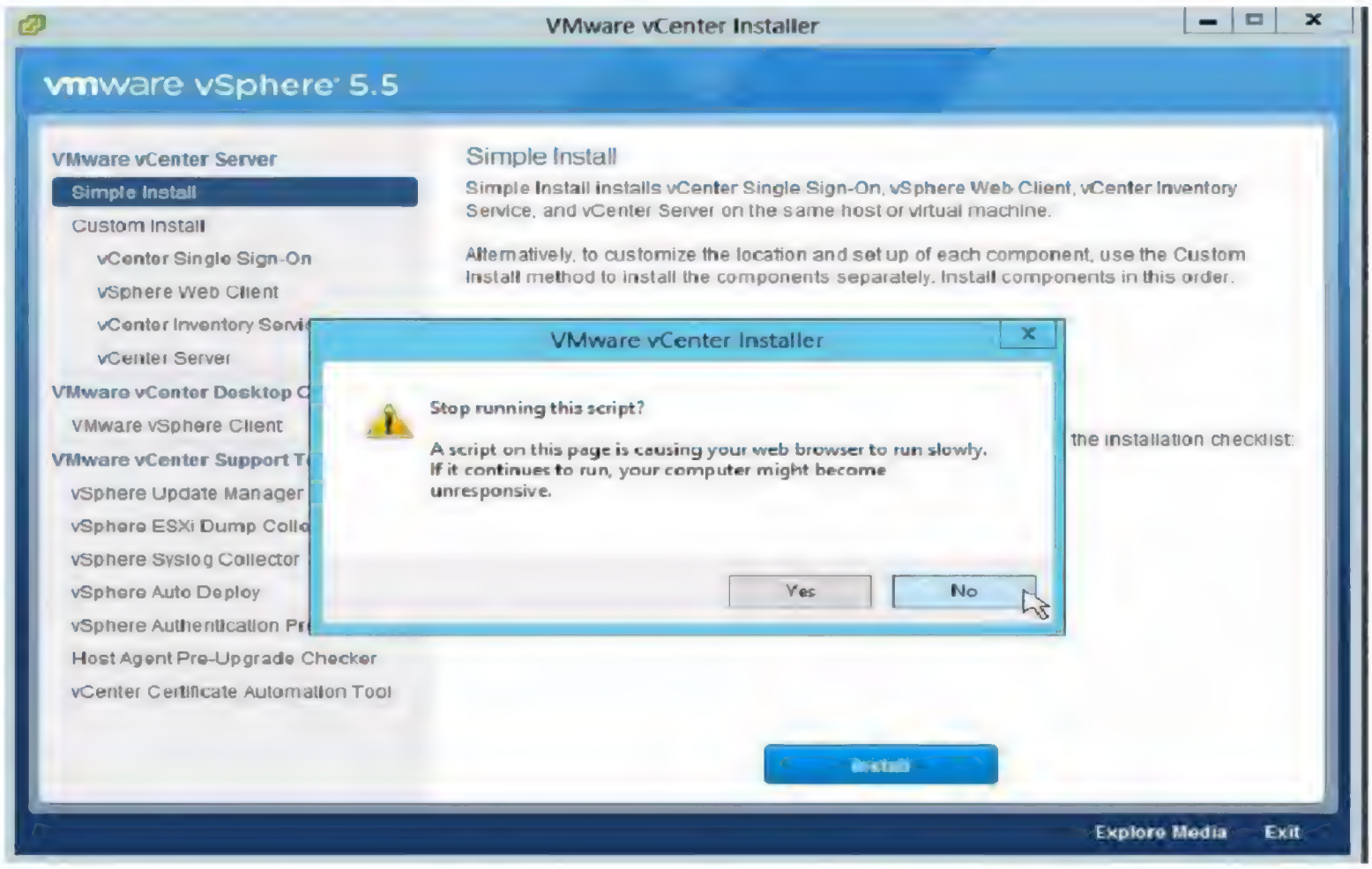
vCenter SSO Installation starts



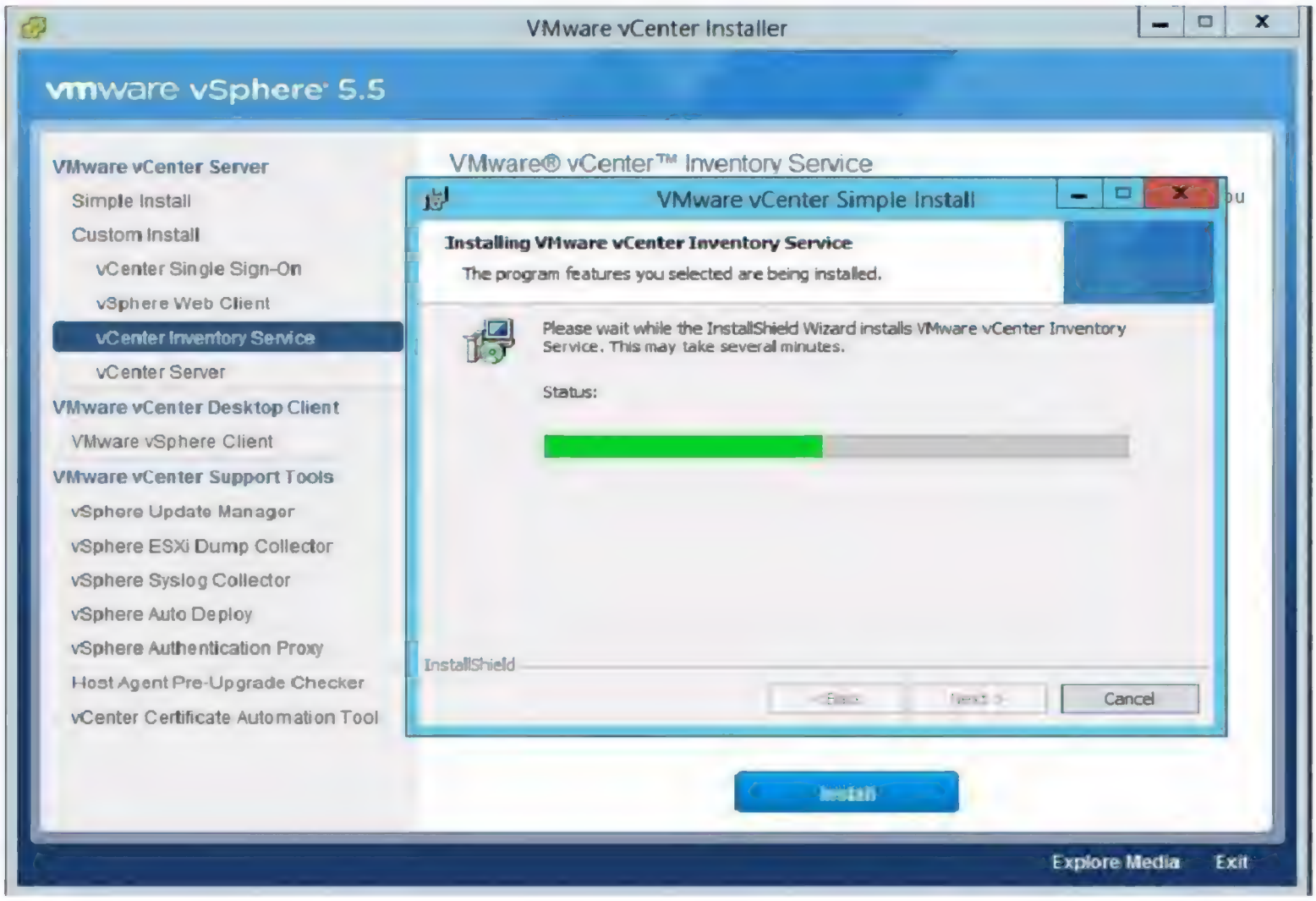
12. Click No to continue



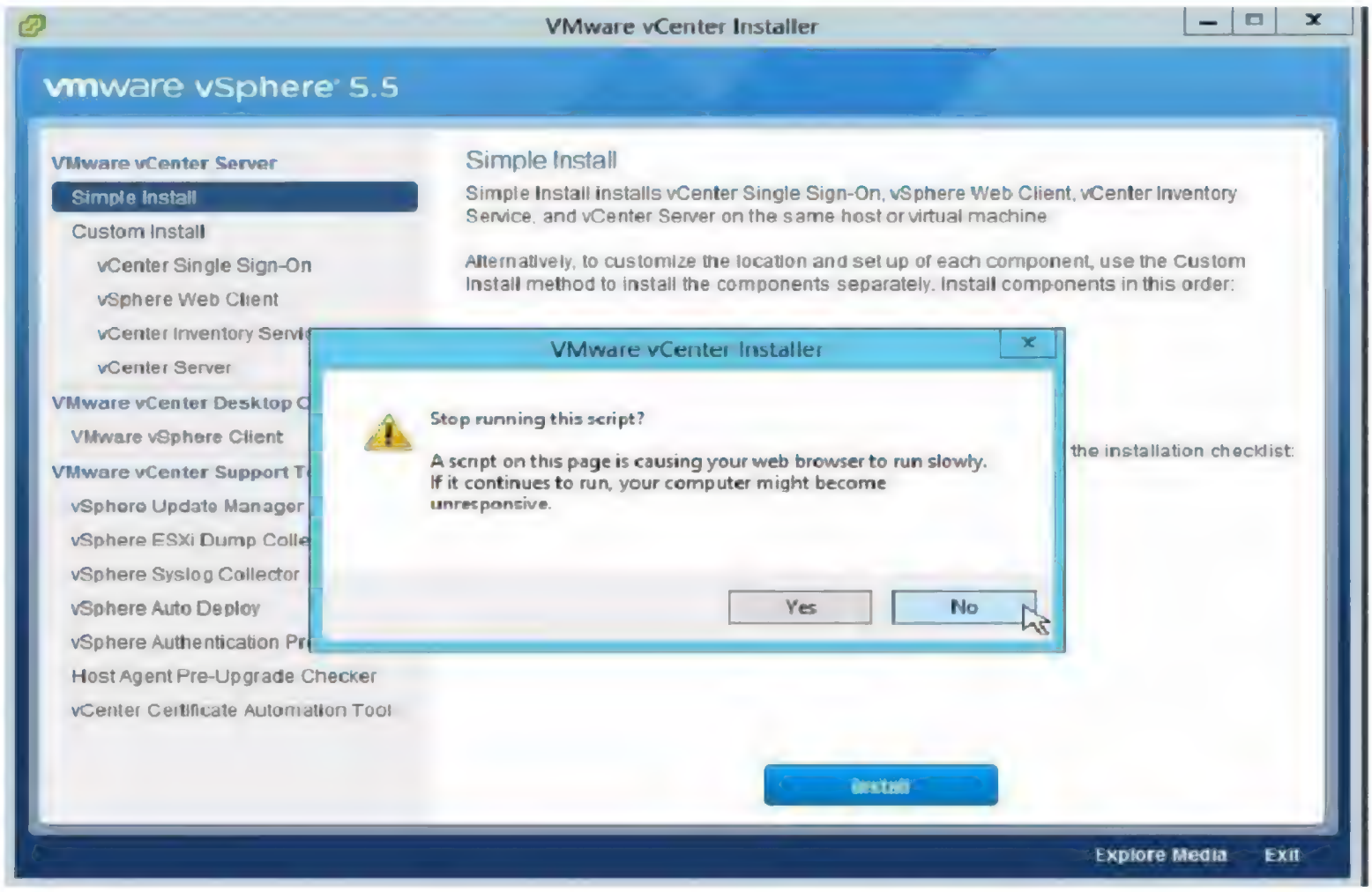
Web client installation starts



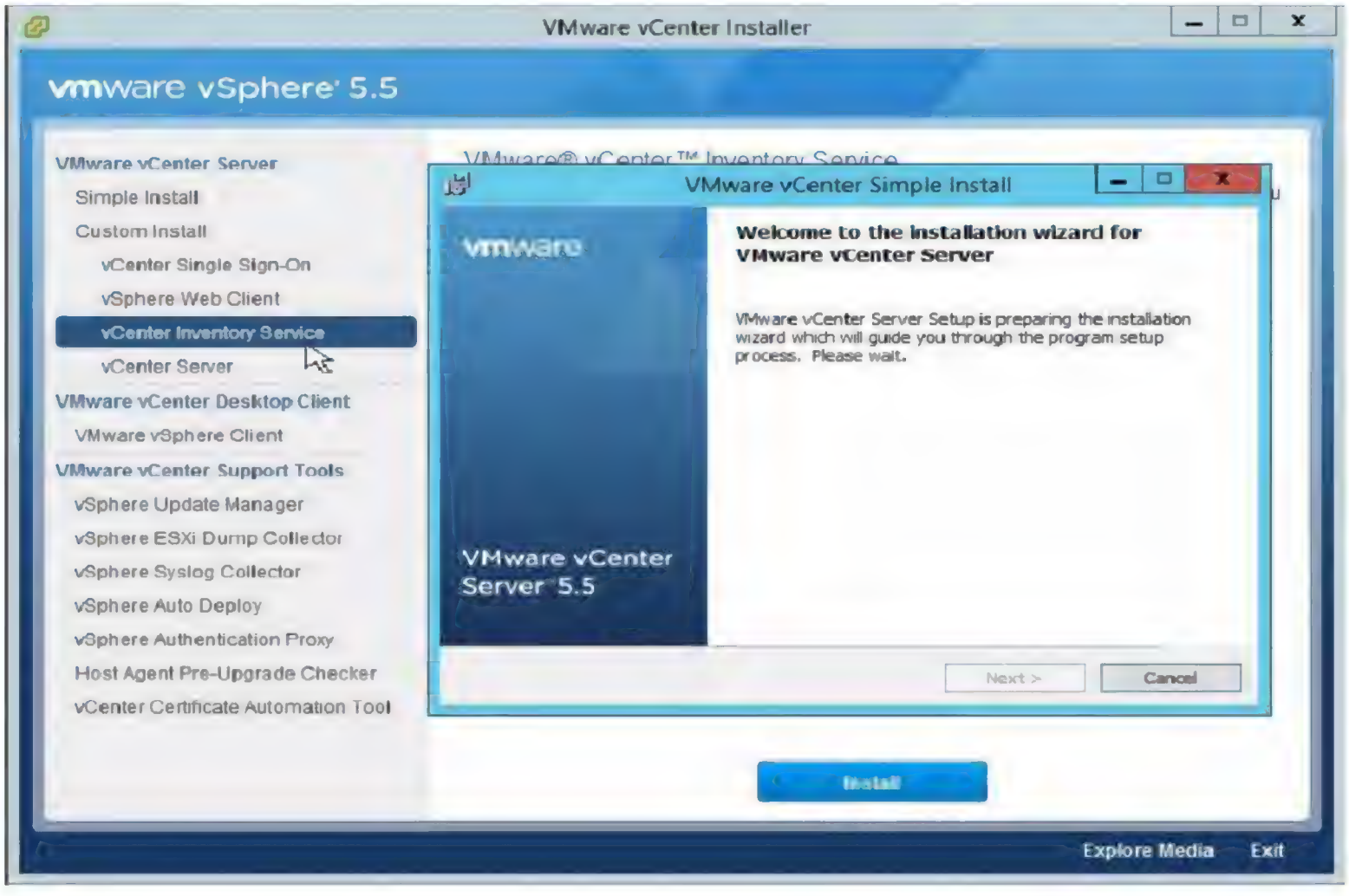
13. Click NO to continue



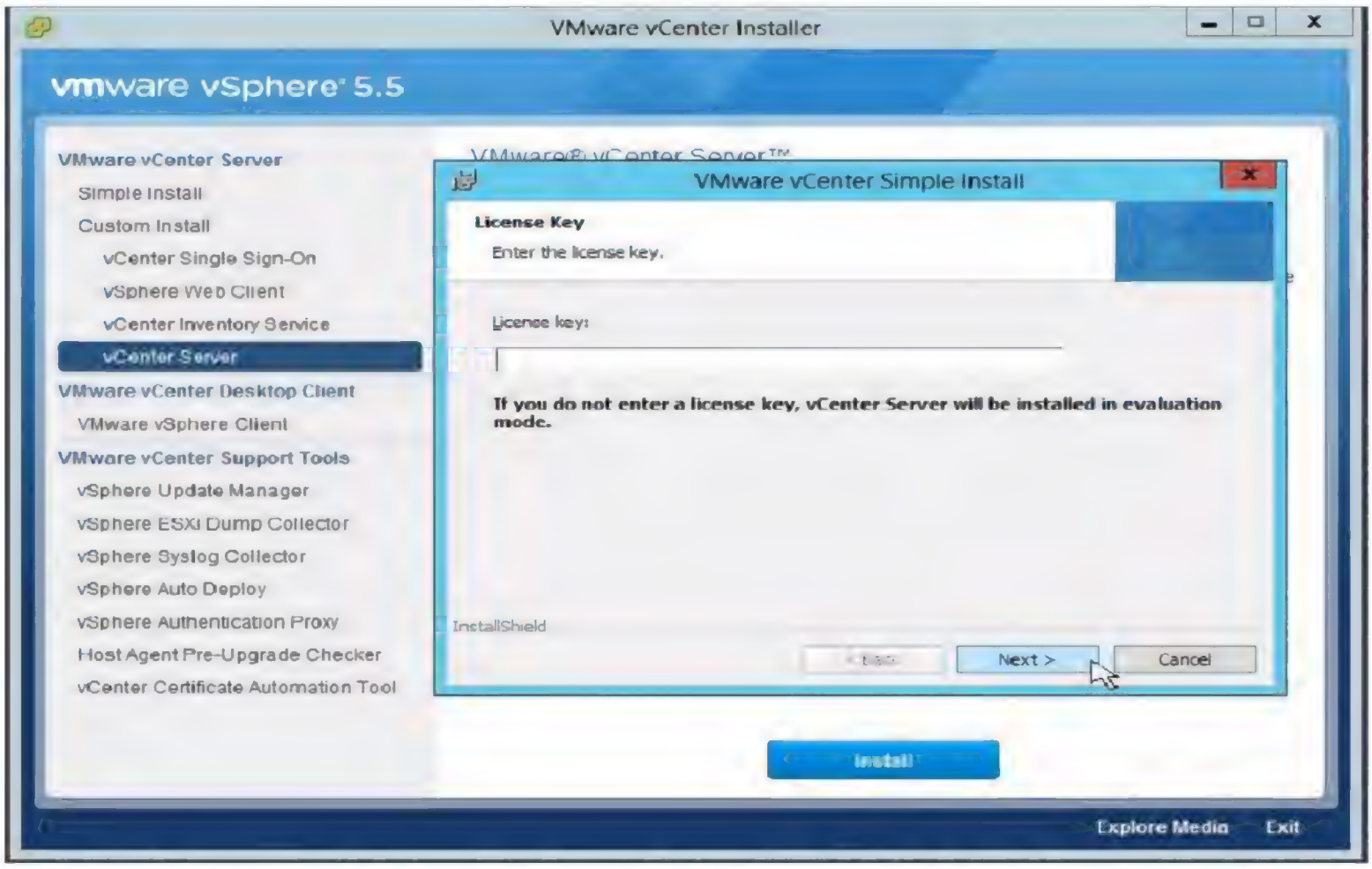
vCenter Inventory Service installation starts



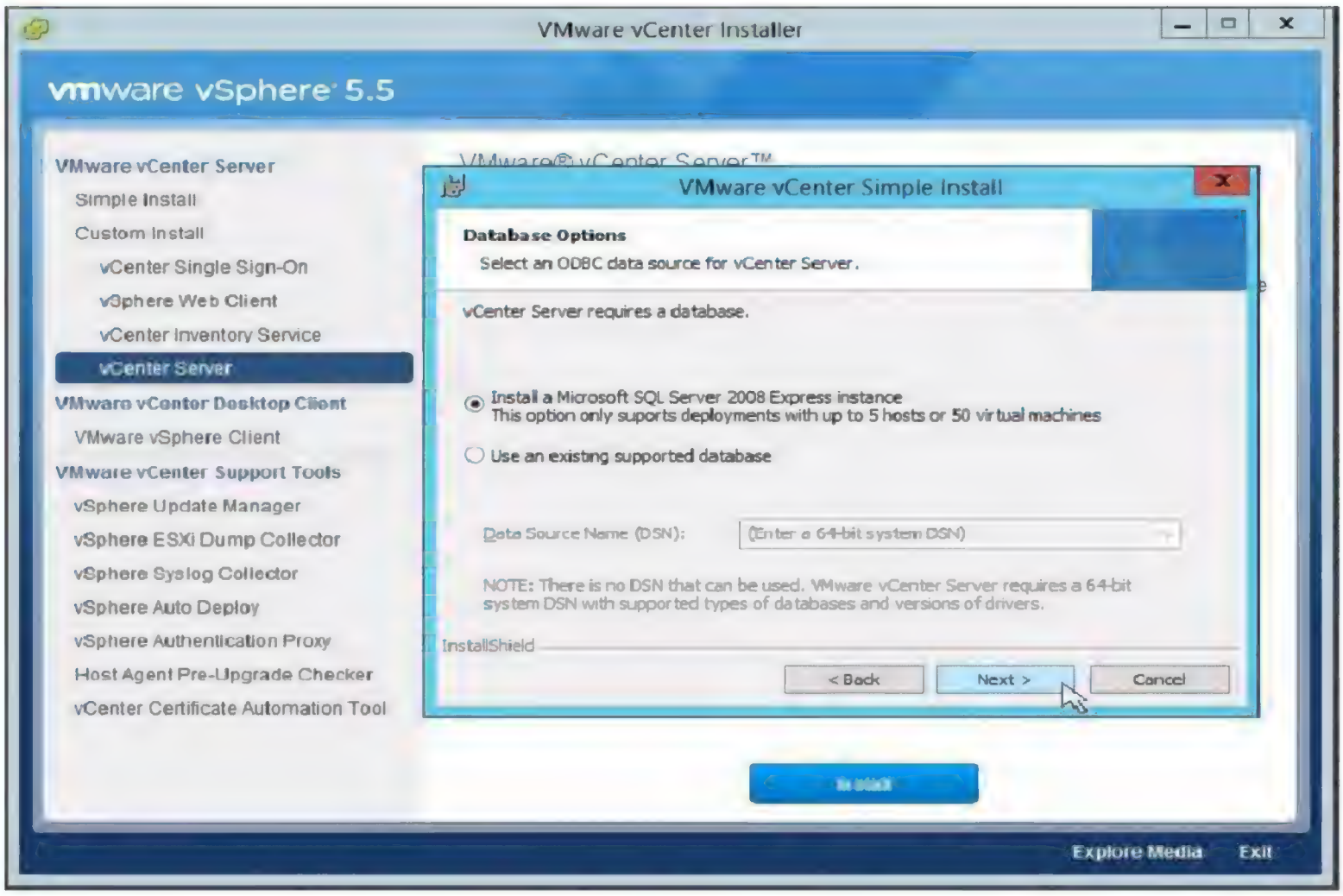
14. Click No to Continue



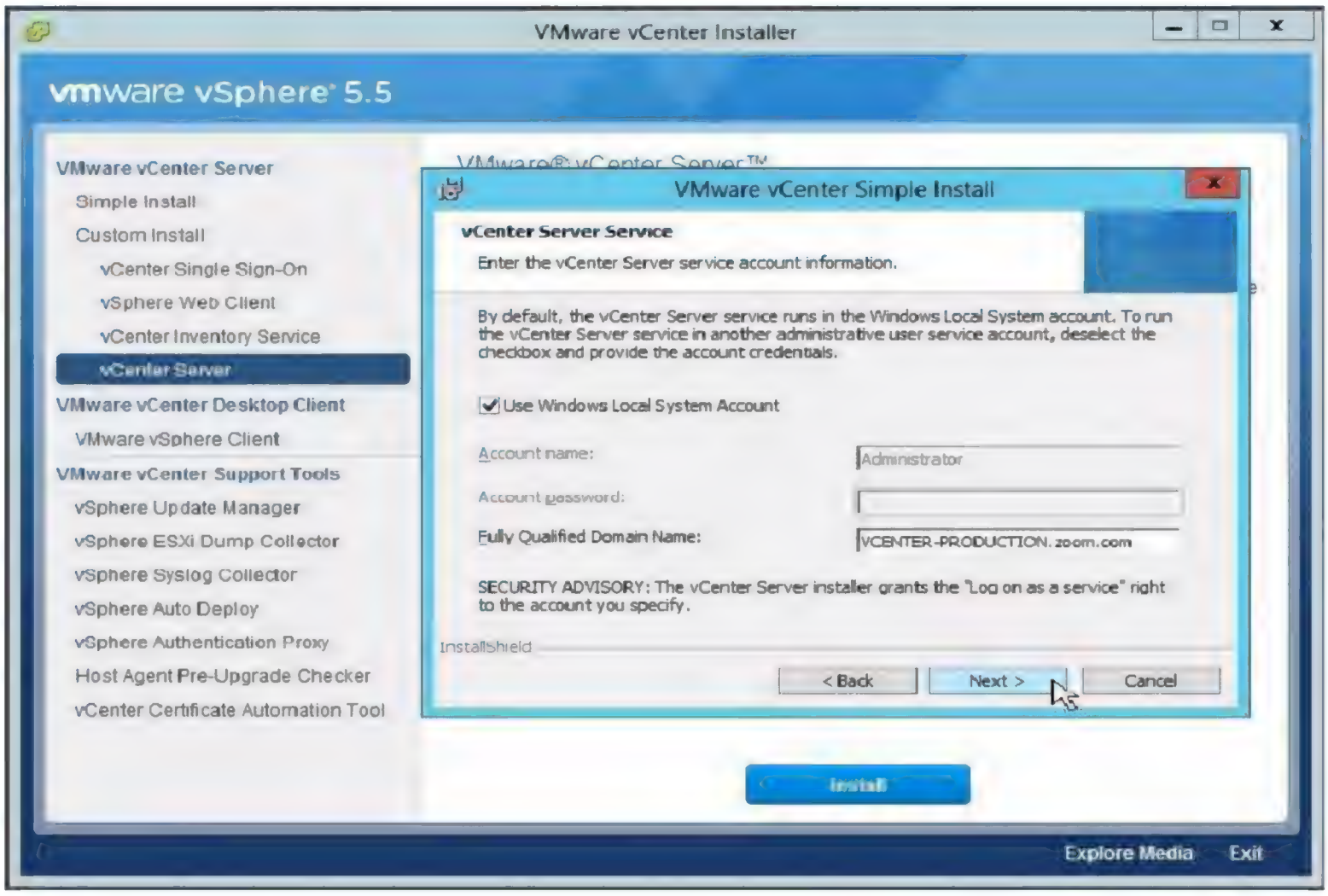
15. vCenter Server installation starts, Next to continue



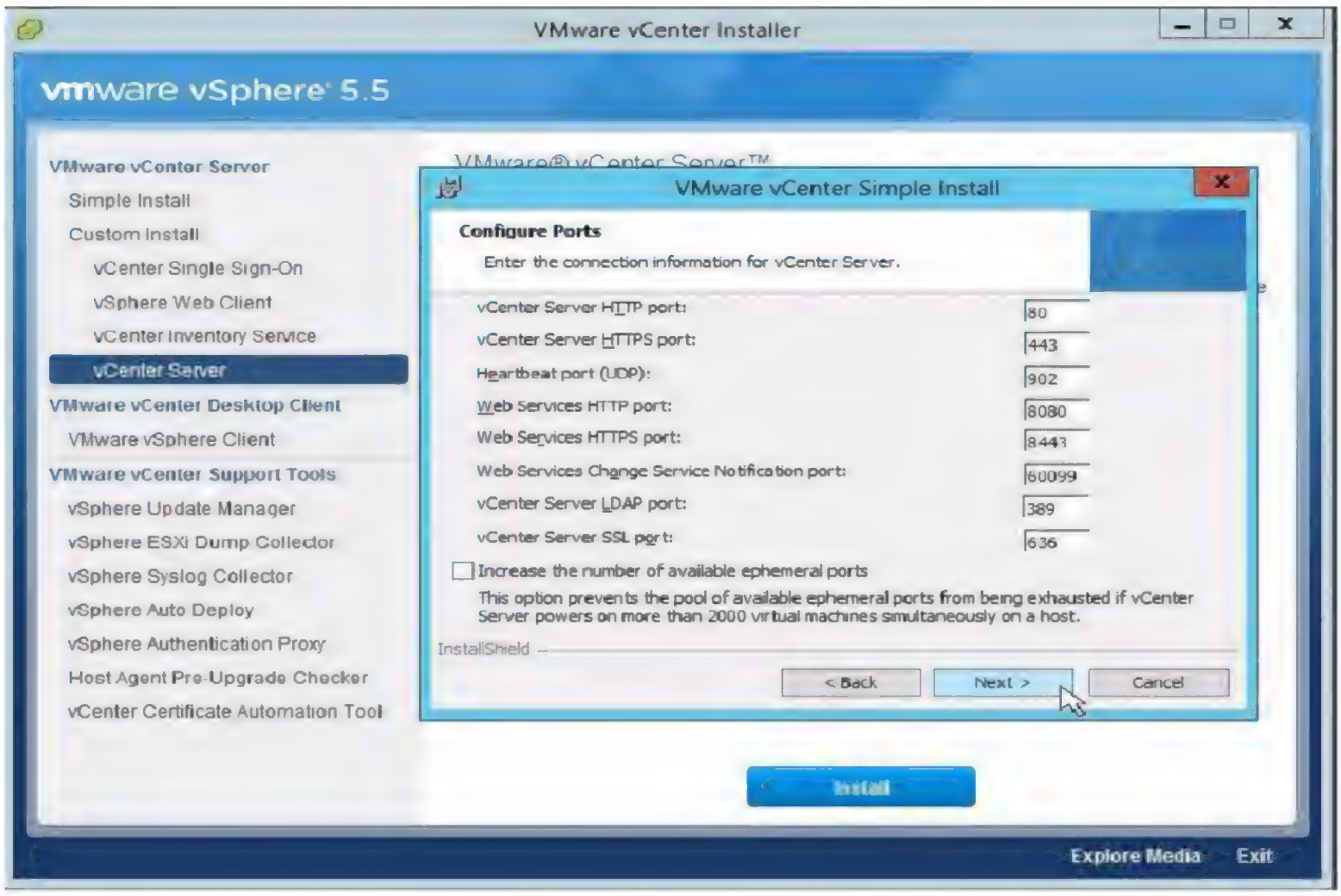
16. Enter the Licence Key of vCenter Server, Next to continue



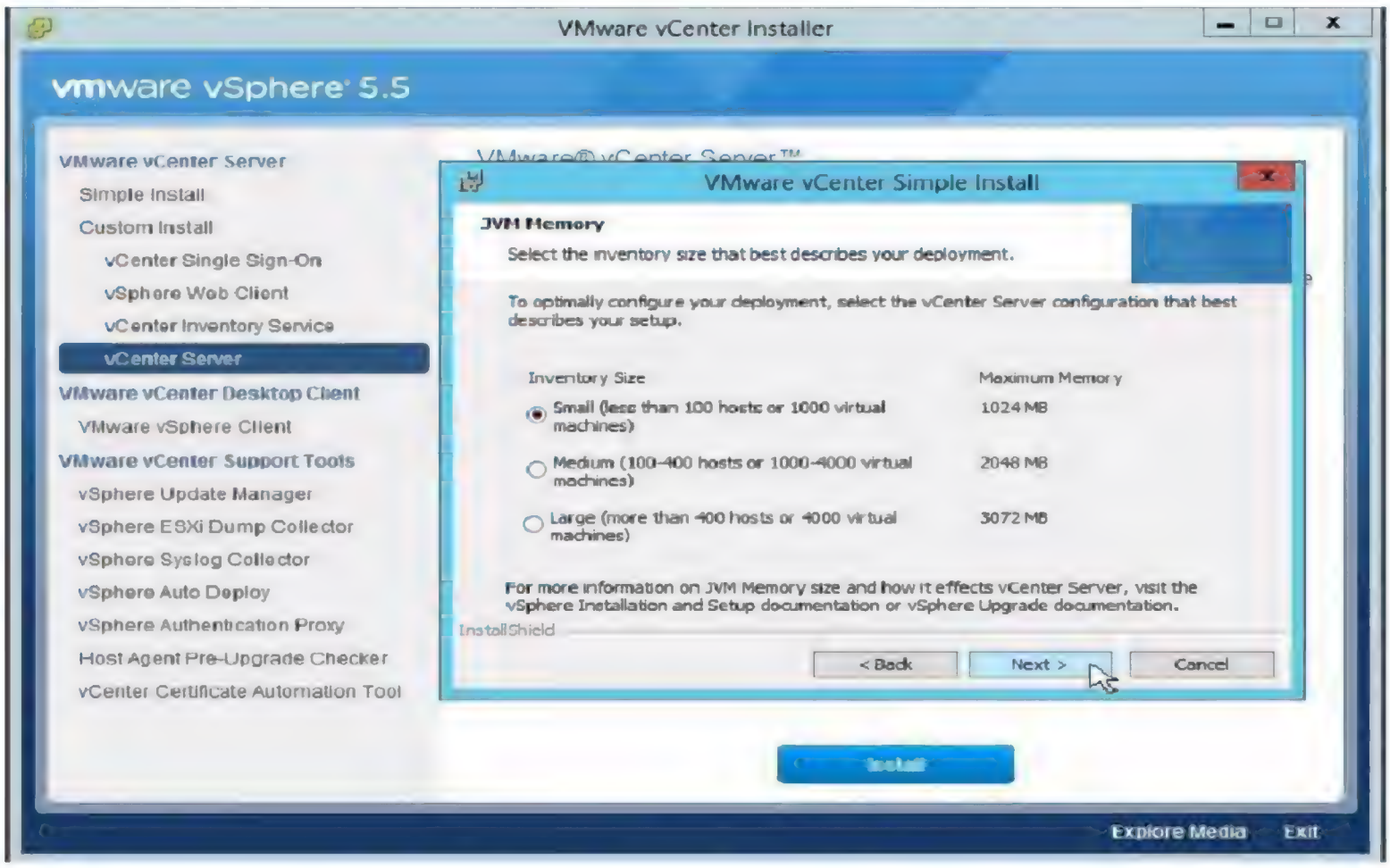
17. Select the Database, Next to continue



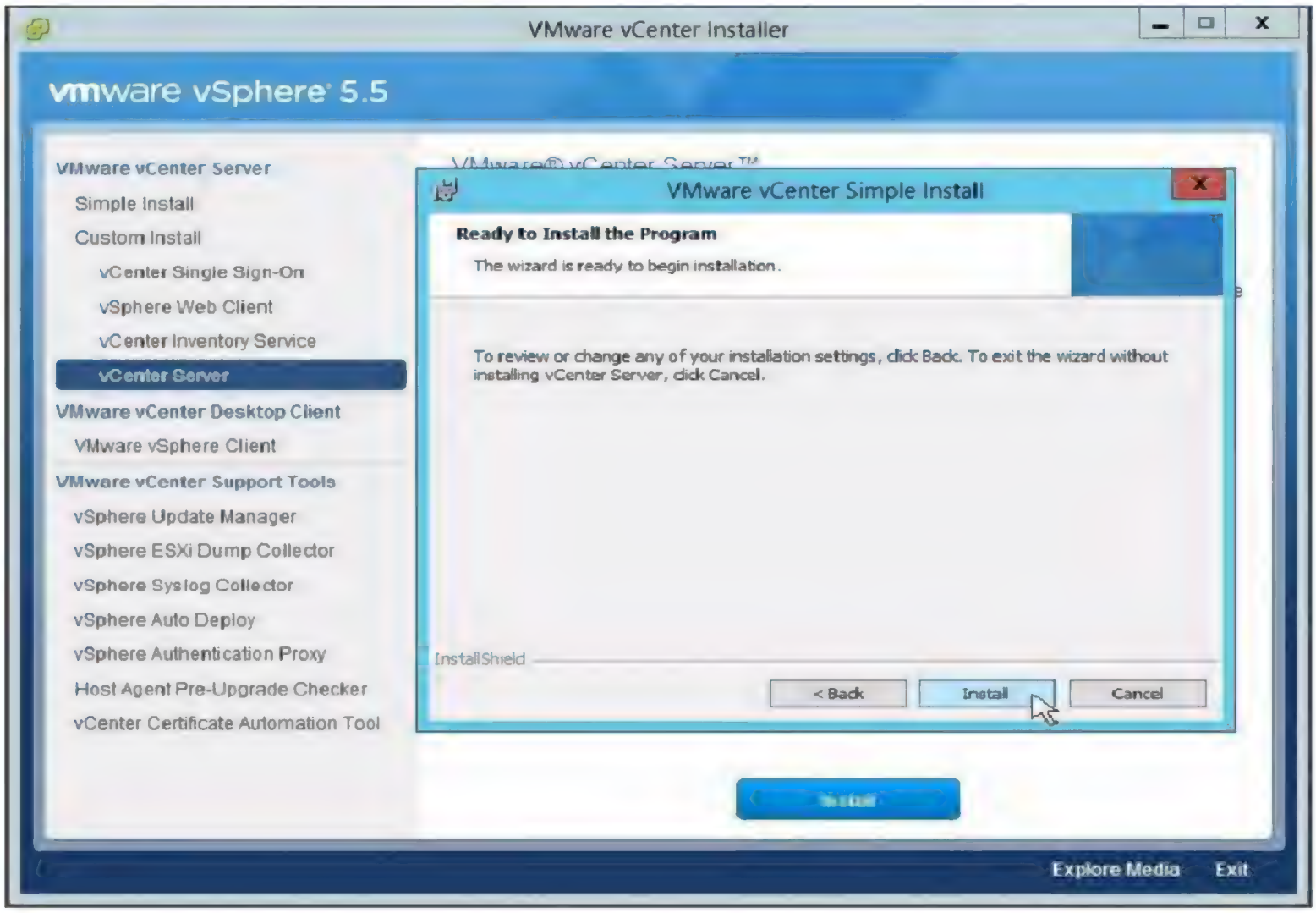
18. Use default Windows Local System Account, Next to continue



19. Use default ports, Next to continue



20. Select Inventory Size, Next to continue



21. Install

OK, vCenter Server Installation Completed

LAB-10: ADDING ESXi HOST TO vCENTER SERVER INVENTORY

Objective:

To Add ESXi Host to vCenter Server Inventory

Prerequisites:

vCenter Server, ESXi Hosts

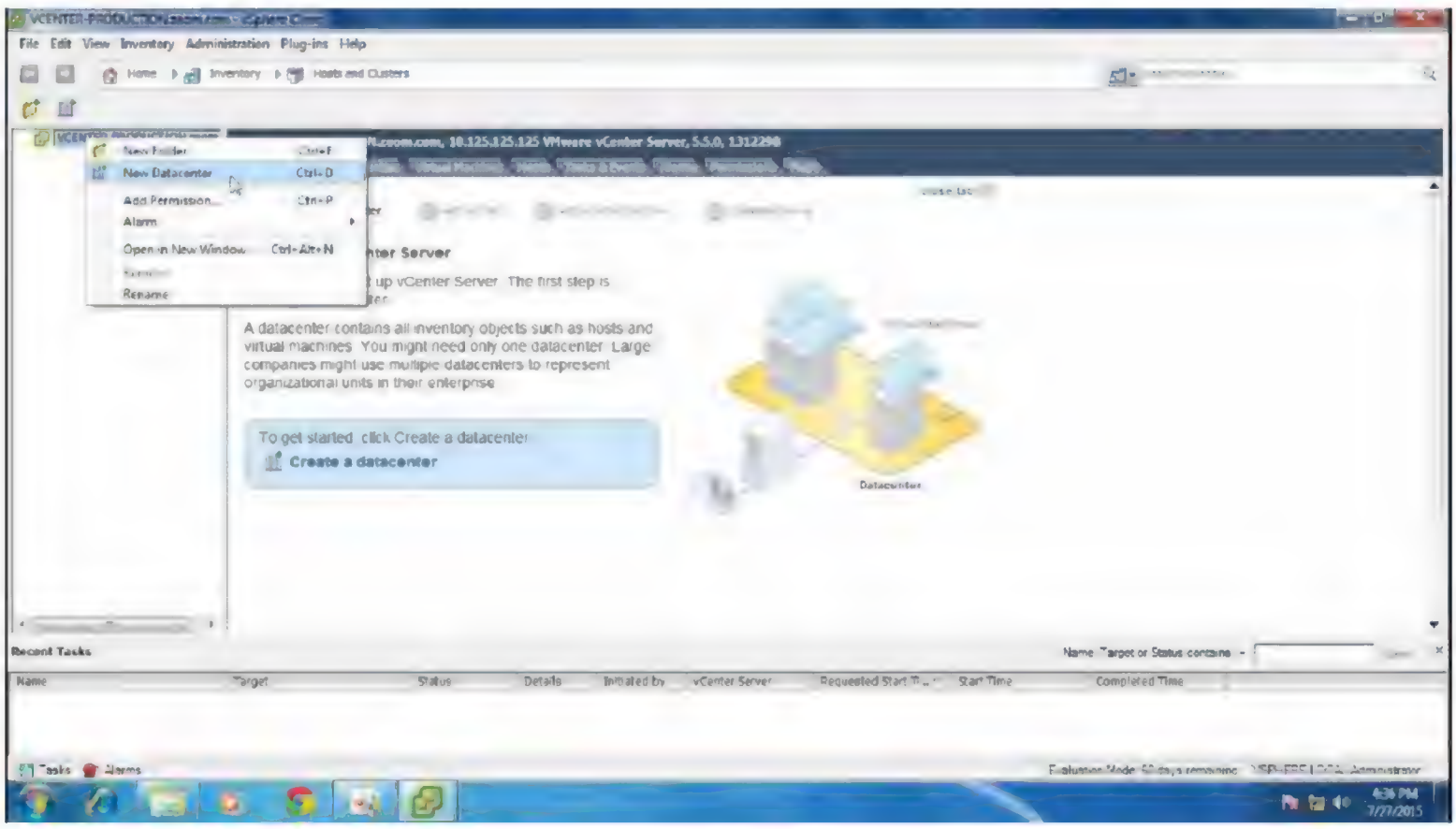
Tasks:

- Create a Datacenter in vCenter Server
- Add ESXi host to Datacenter

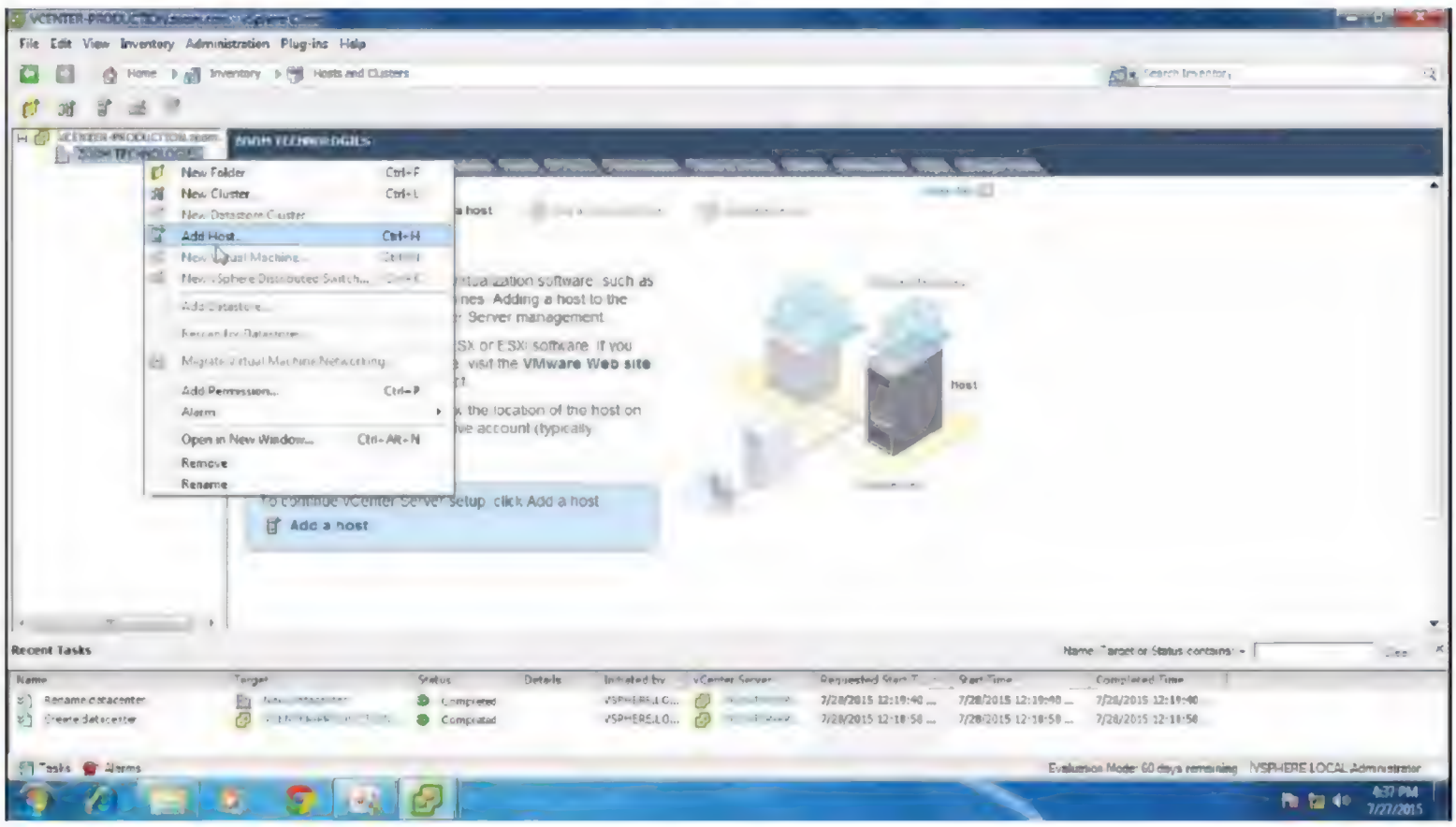
Steps:

1. Launch vSphere Client

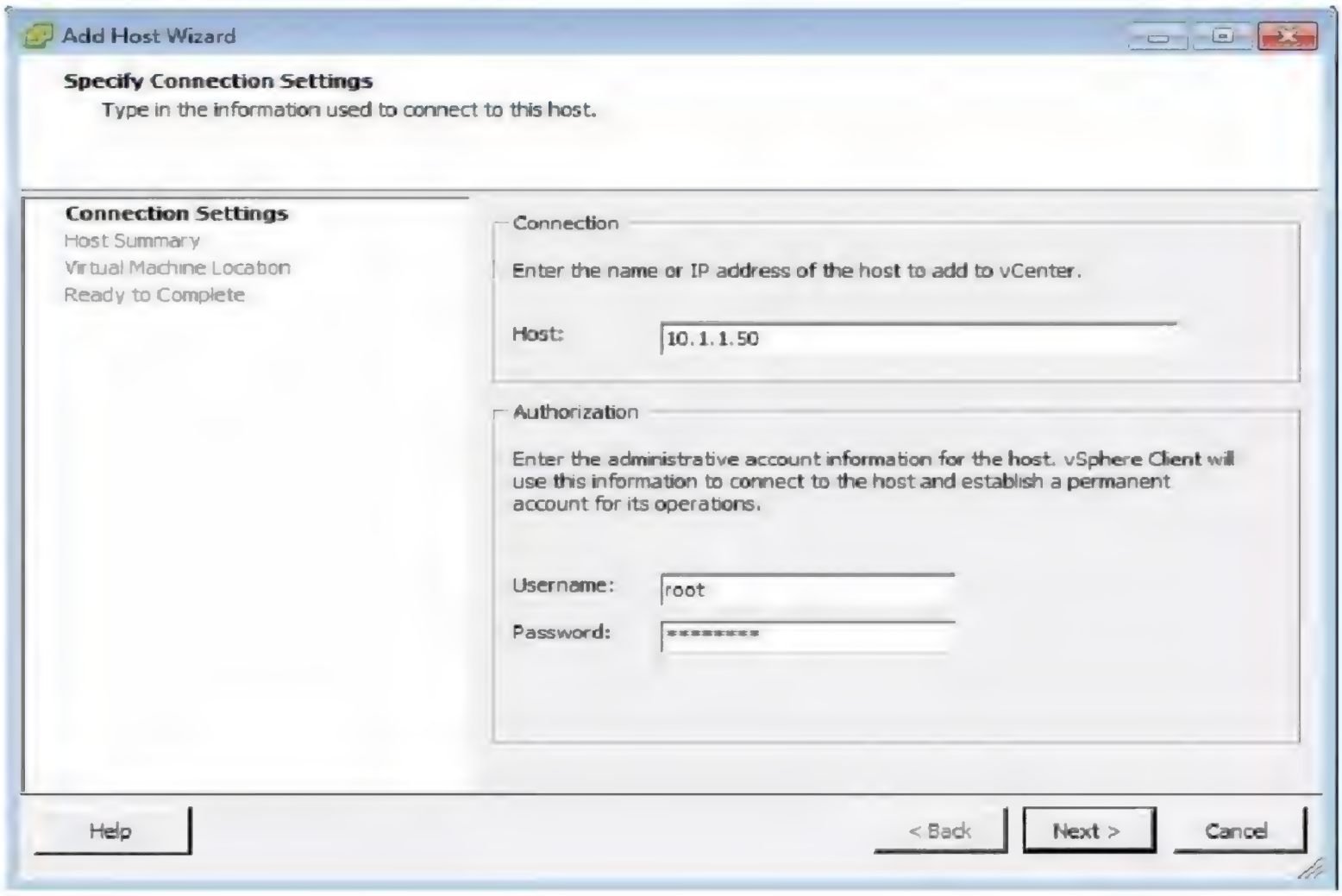
2. Enter IP Address/Host Name of vCenter Server, Credentials, Login



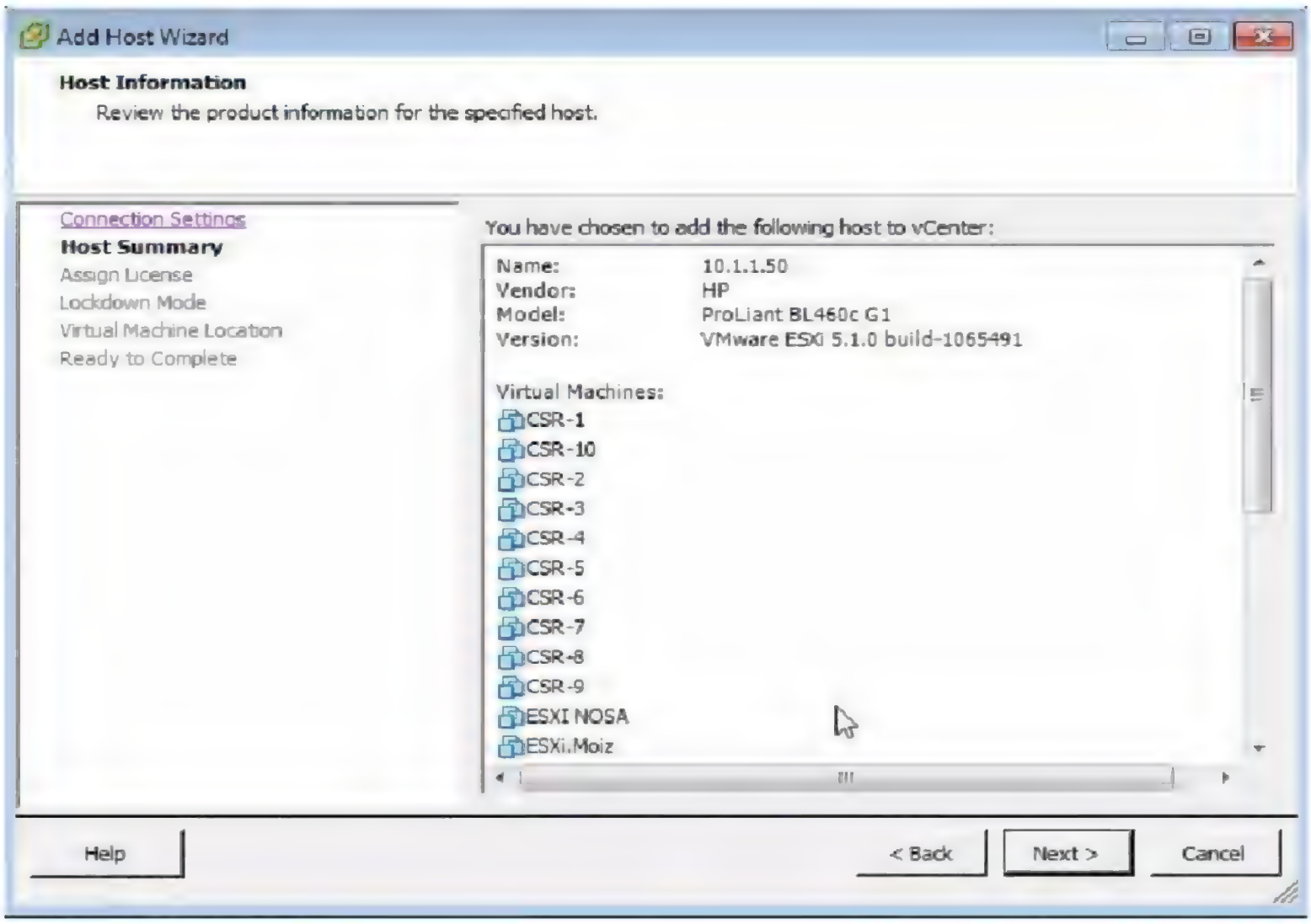
3. Right Click on vCenter Server, Click on New Datacenter, give a name to your Datacenter



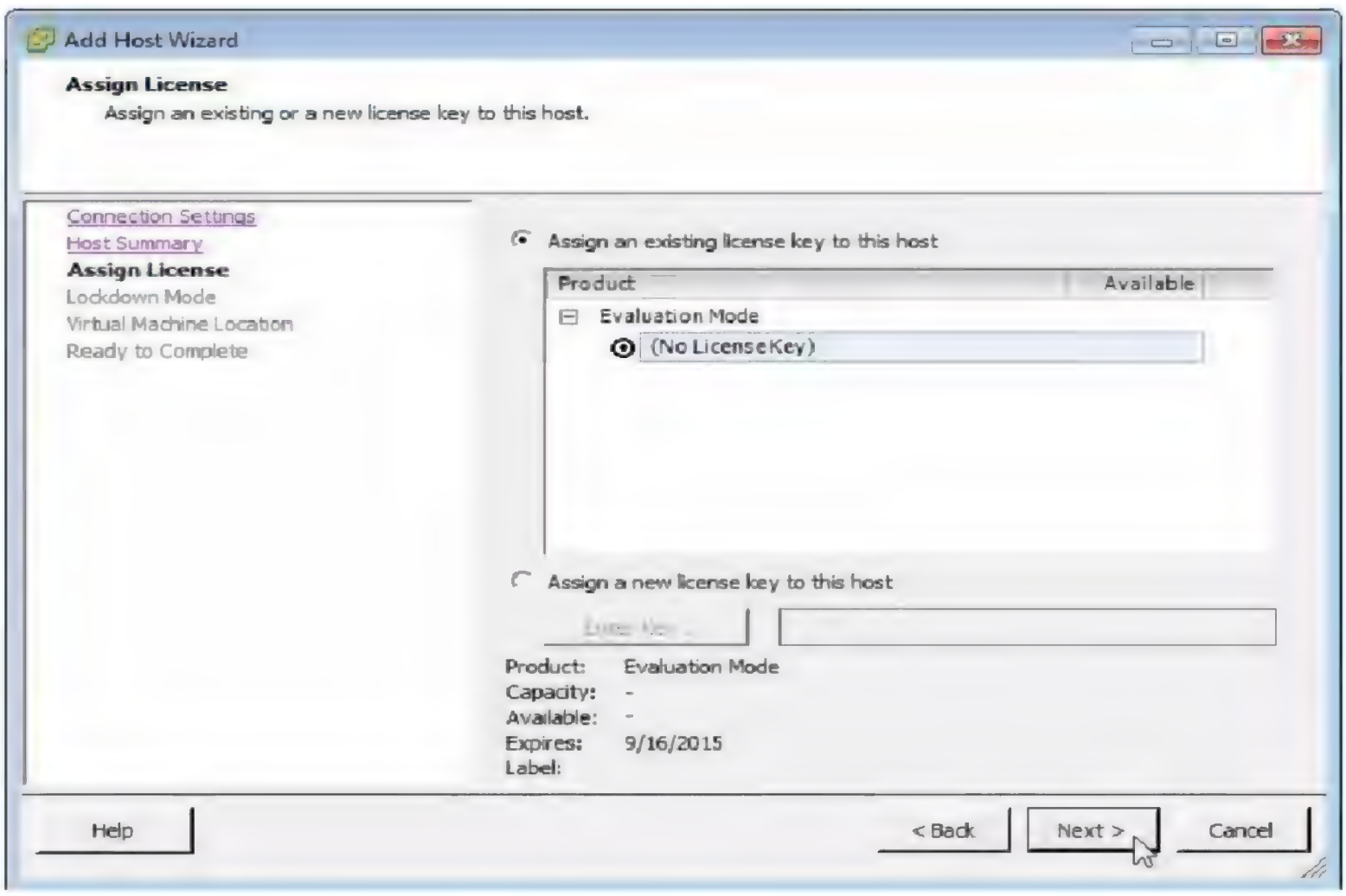
4. Right Click on Datacenter Click on Add Host



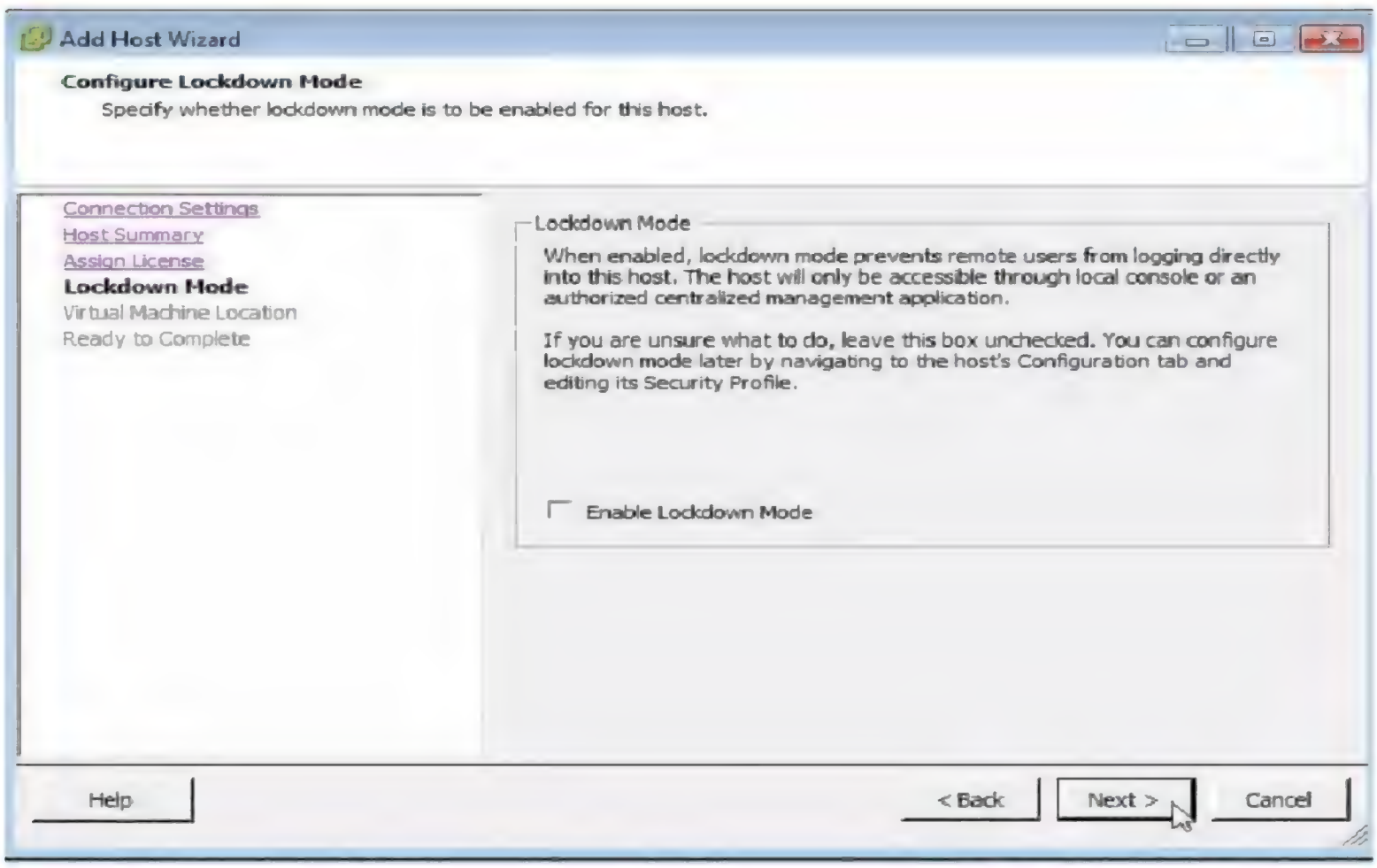
5. Enter the IP Address/Host Name of ESXi Host, Credentials, Next to continue



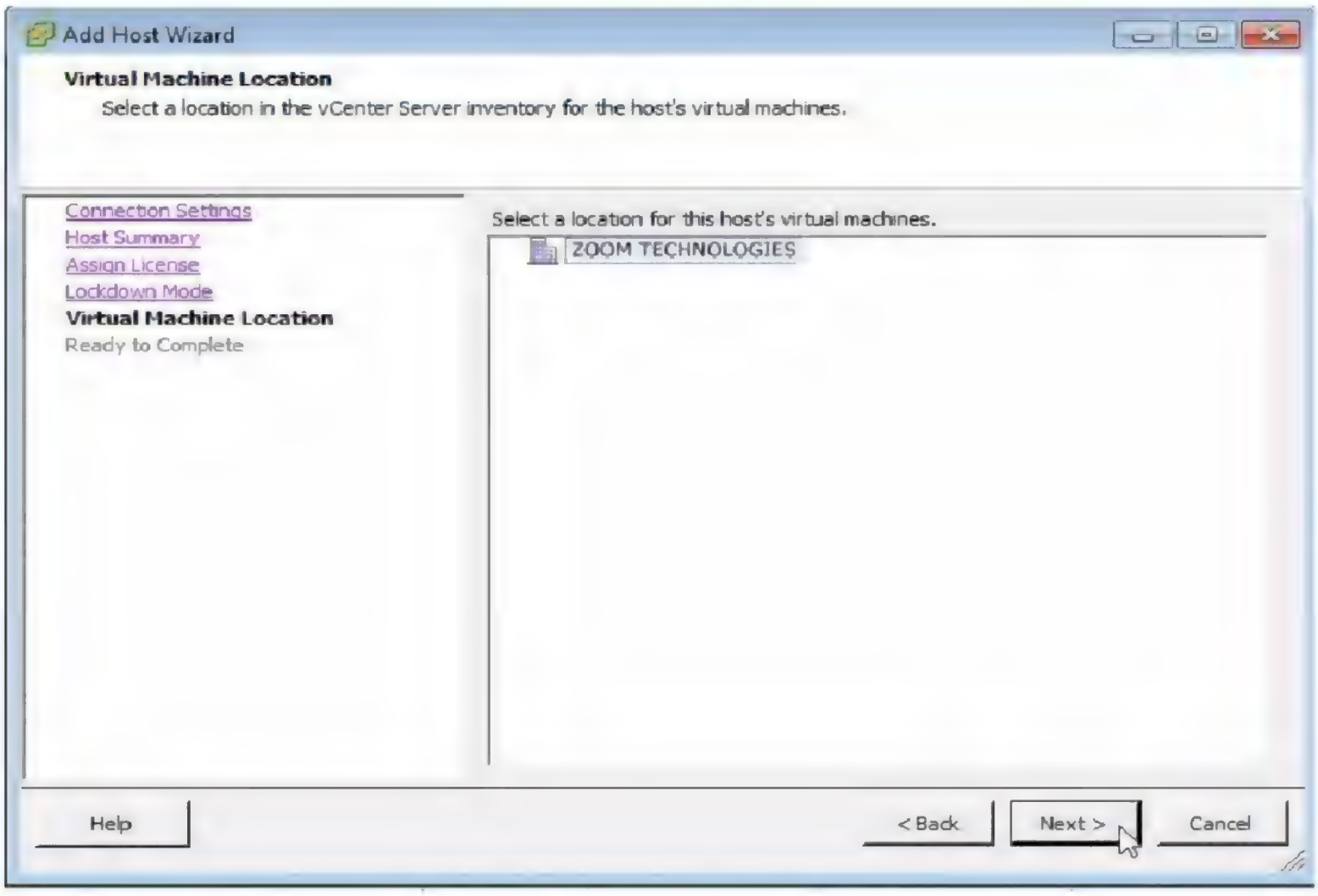
6. Next to Continue



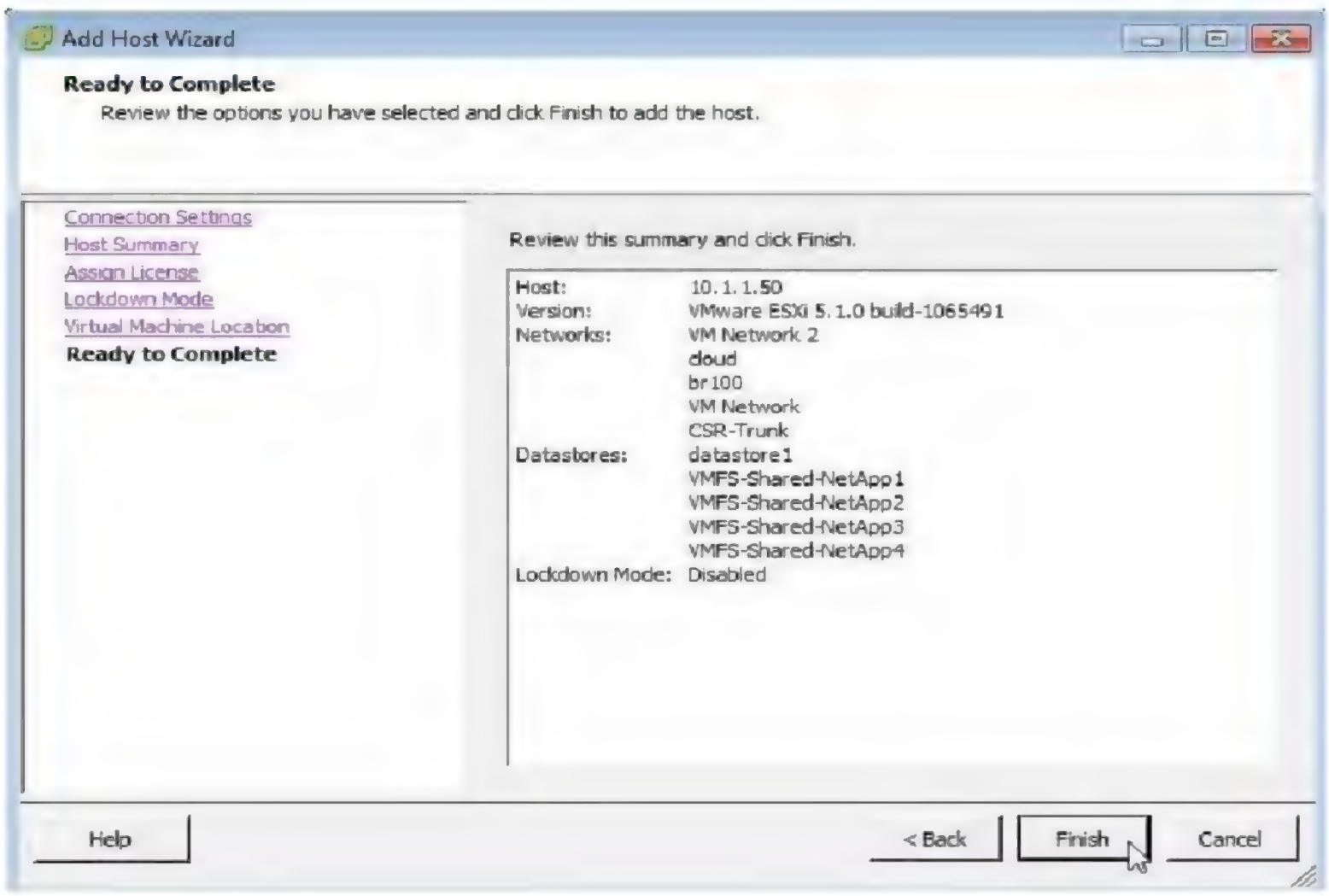
7. Assign a license key if any, Next to continue



8. Enable Lockdown Mode if required, Next to continue

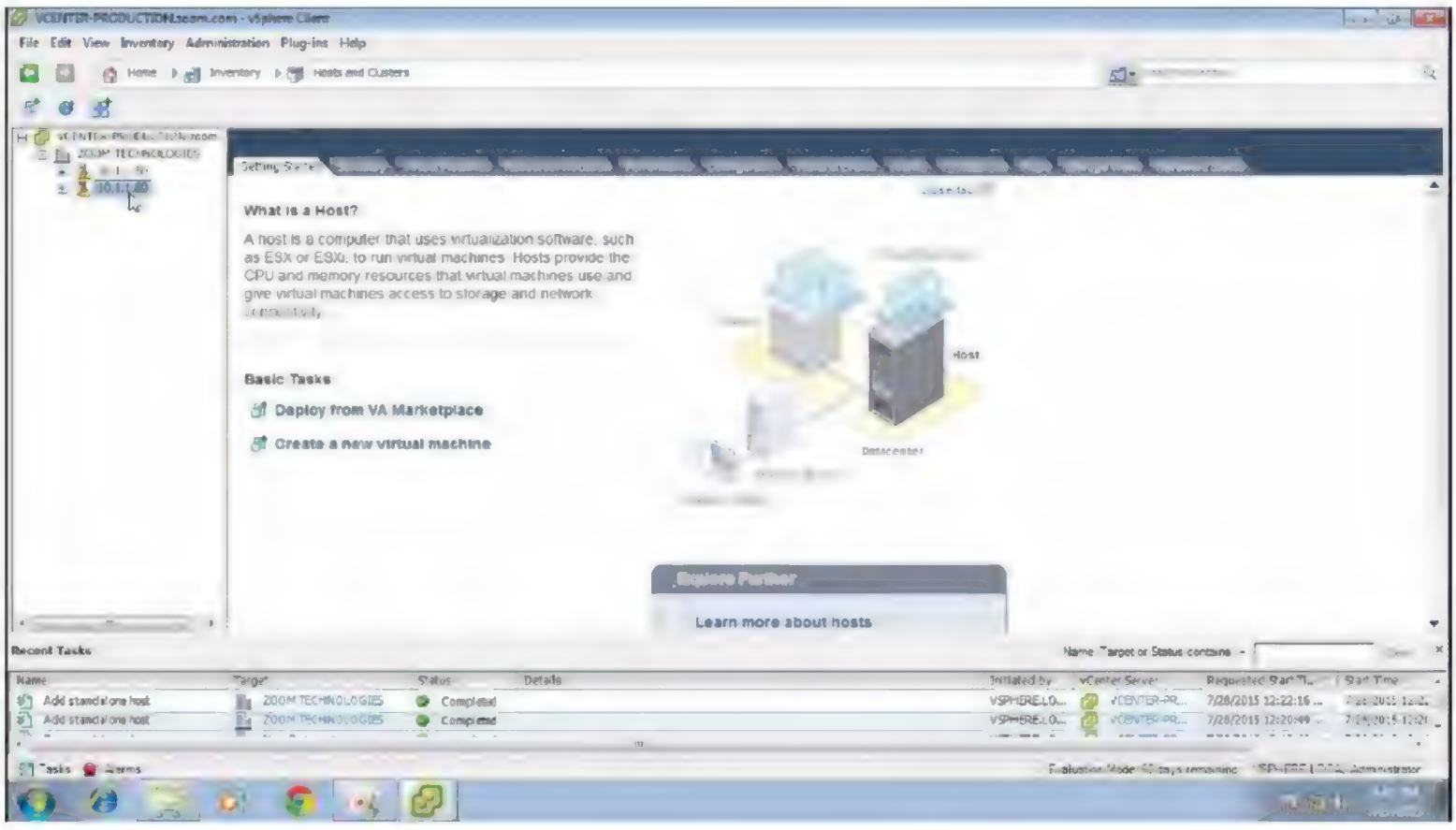


9. Next to continue



10. Finish

Verification:



Observe ESXi host is added to a Datacenter in vCenter server inventory

LAB-11: CONFIGURING iSCSI STORAGE

Objective:

To configure iSCSI Storage on the ESXi host/Vcenter server

Prerequisites:

iSCSI SAN with LUNs and Targets created and access rights configured for ESXi Hosts

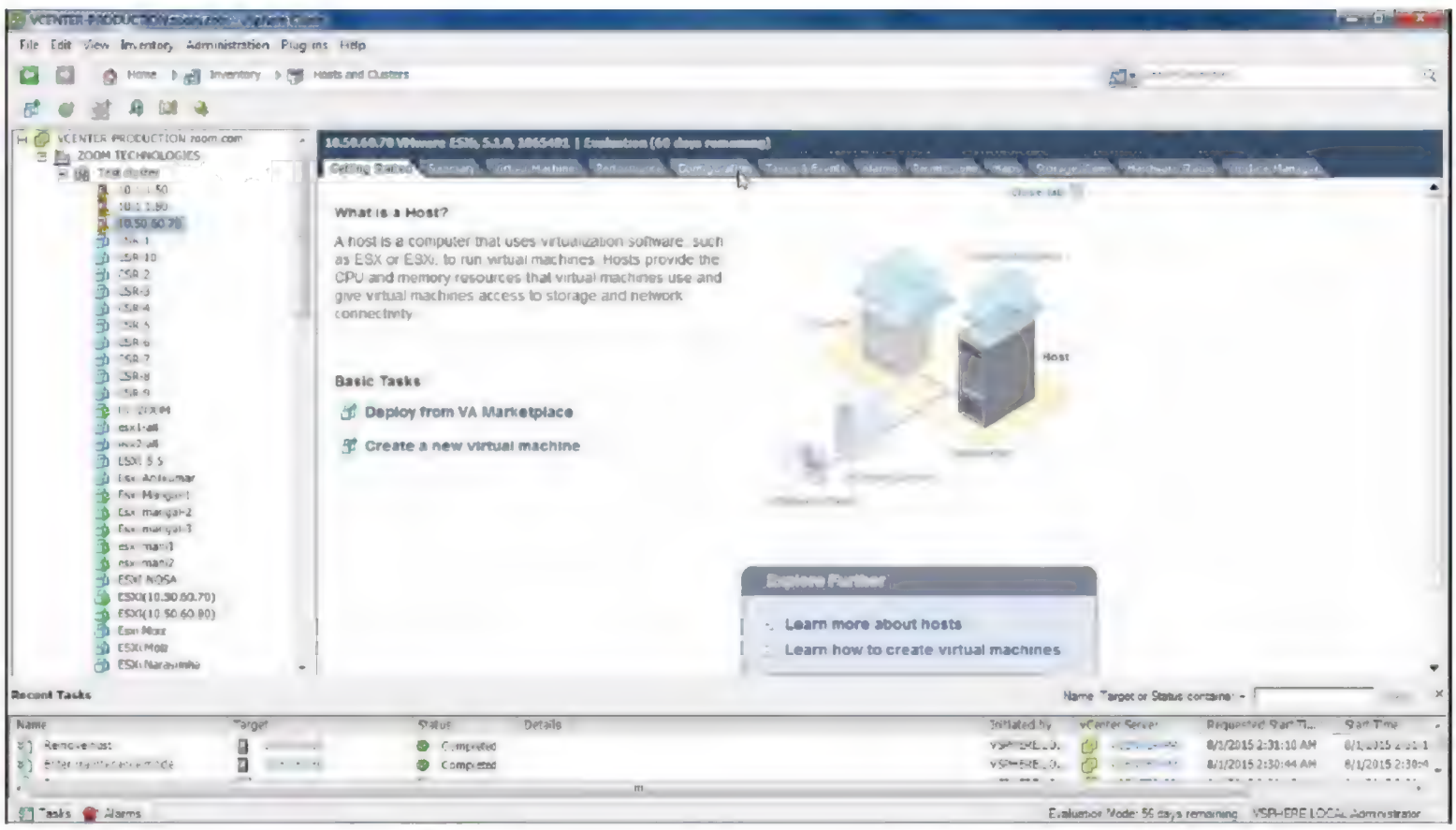
Tasks:

- Add software iSCSI adaptor
- Configure iSCSI initiator
- Add storage

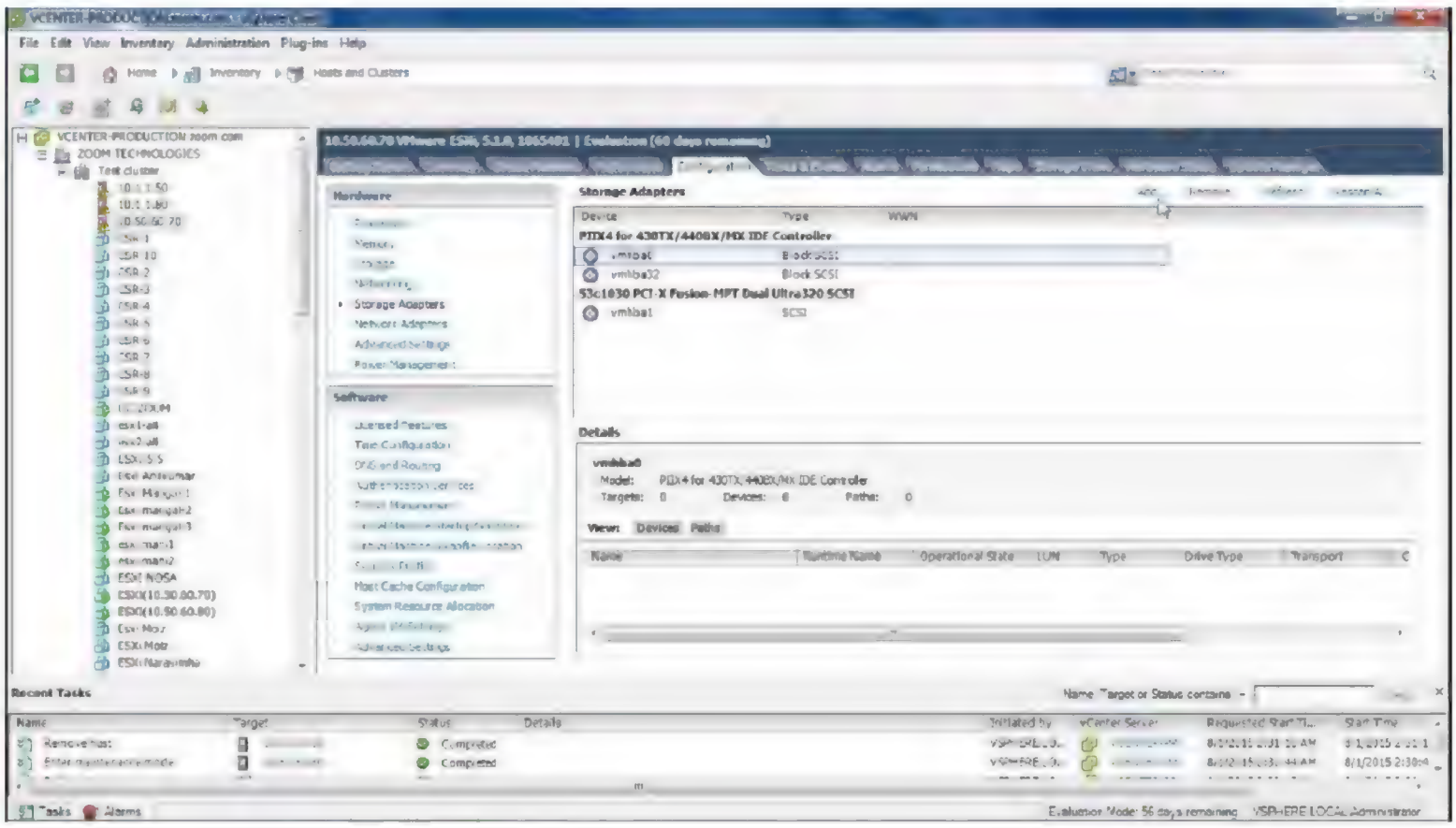
Adding Software iSCSI Adaptor

Steps:

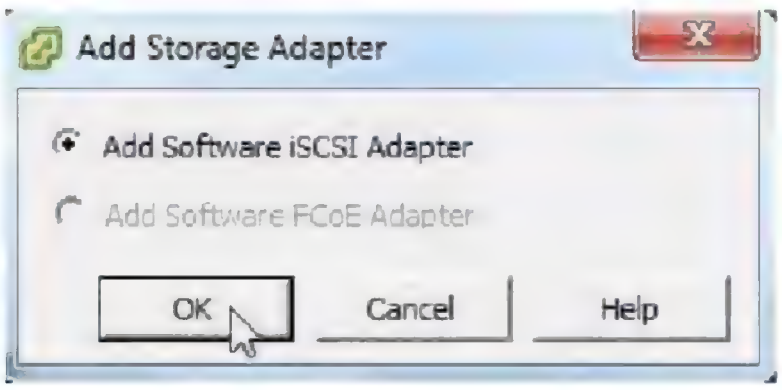
1. Login in to ESXiHost/vCenter Server Using vSphere Client



2. Select the Host, Click on the Configuration Tab of Host



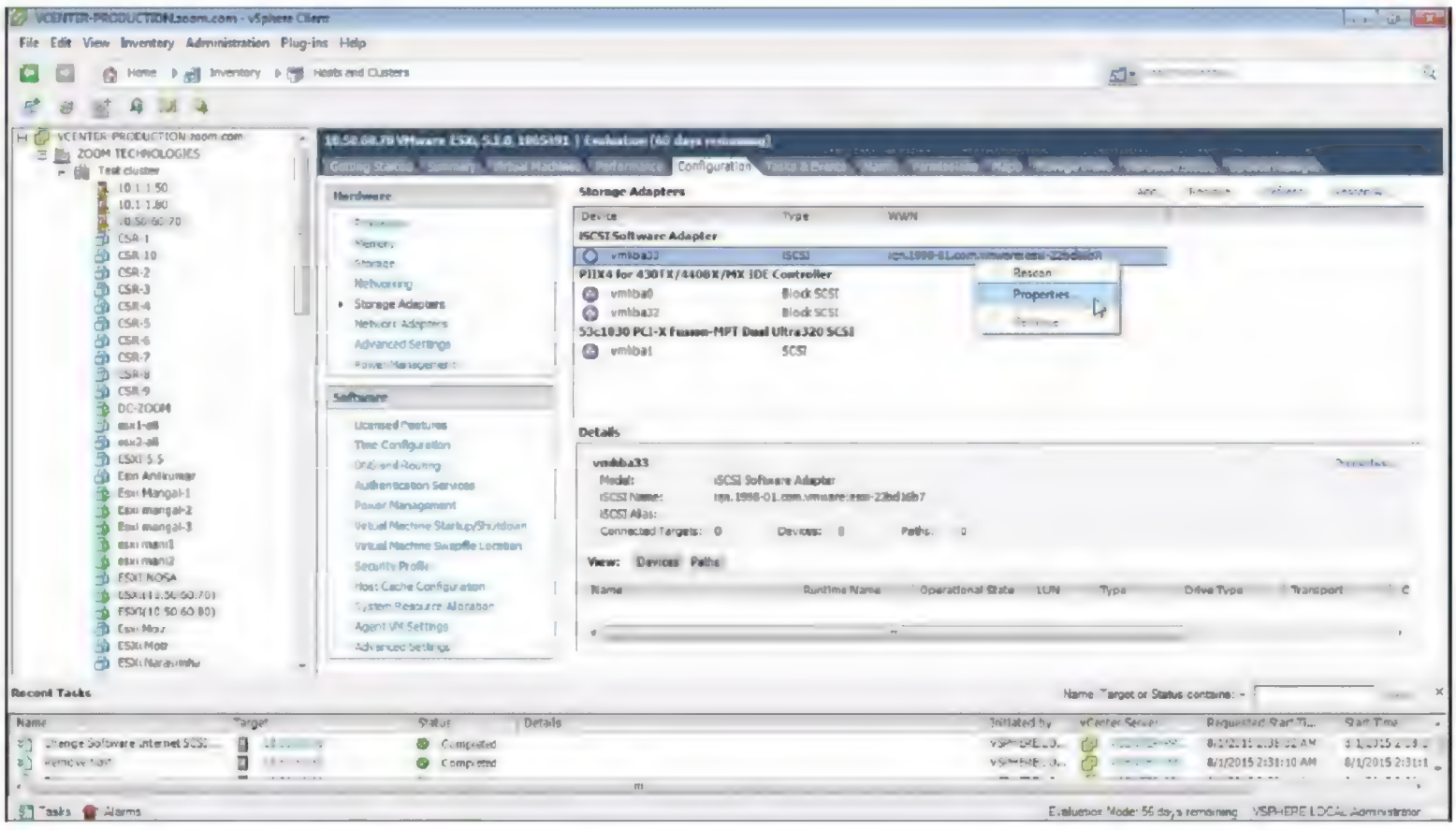
3. Select Storage Adaptors, Click on Add



4. Add software iSCSI Adapter, OK

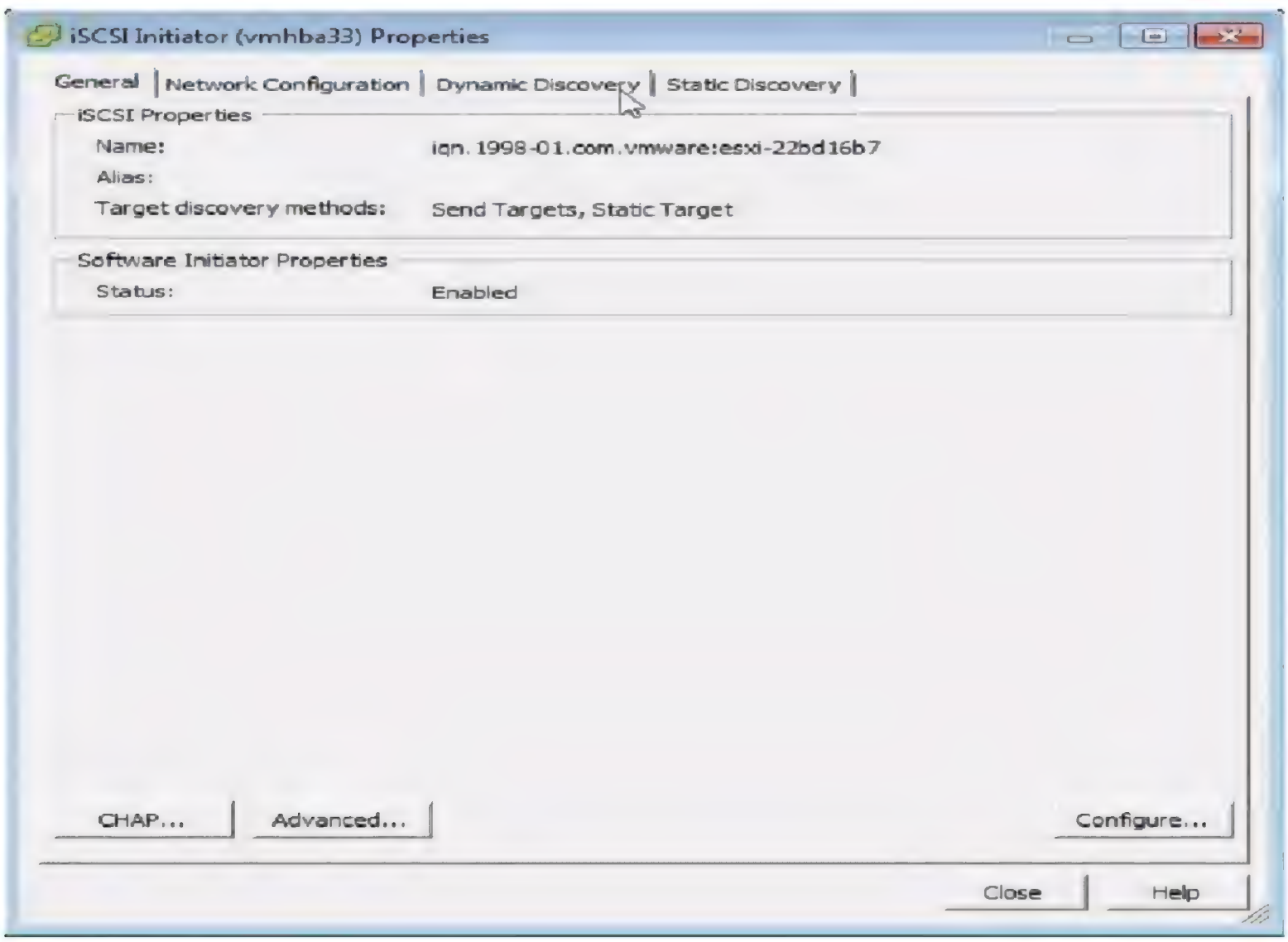
5. OK will add a new software iSCSI adapter

Configuring iSCSI Initiator

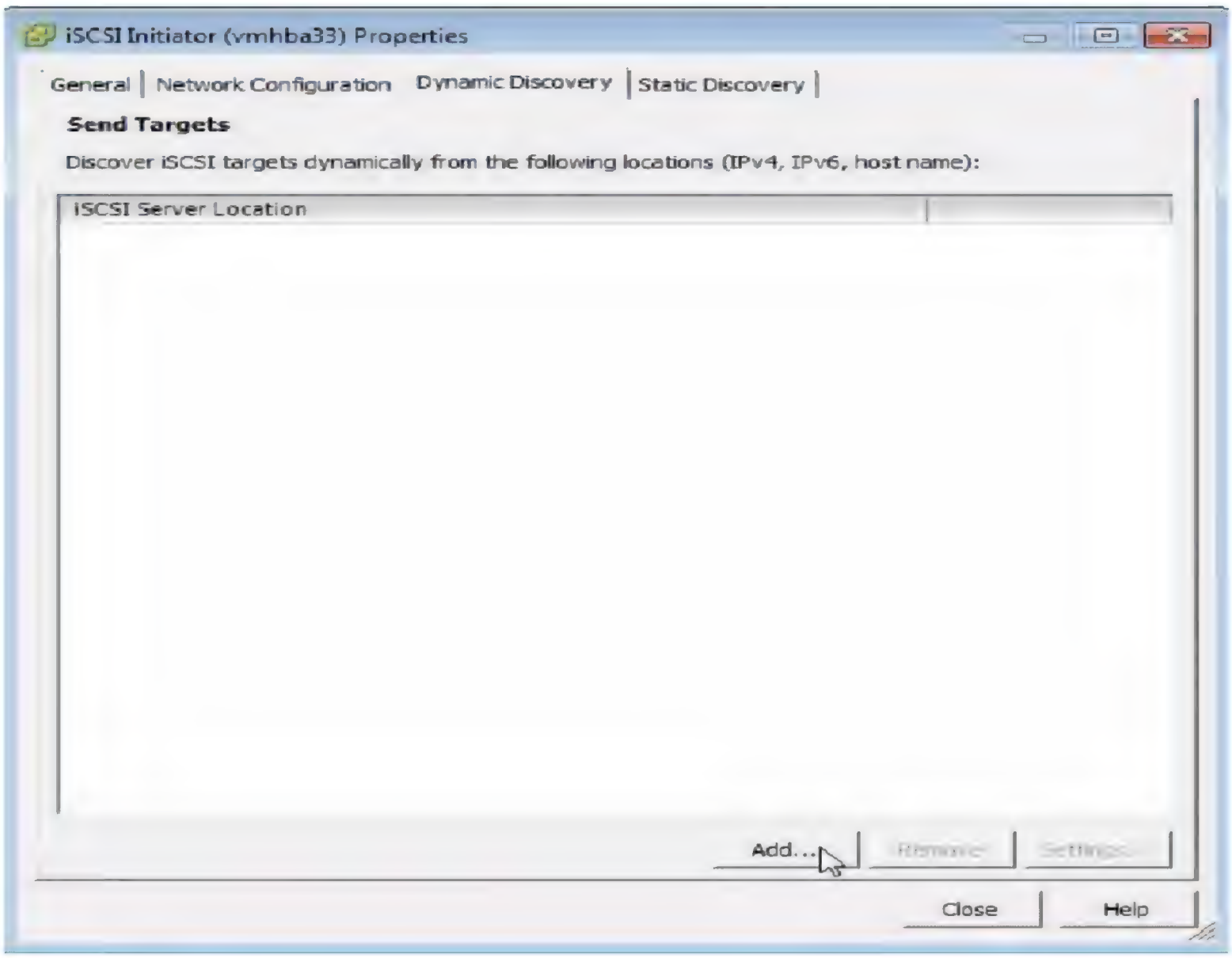


Steps:

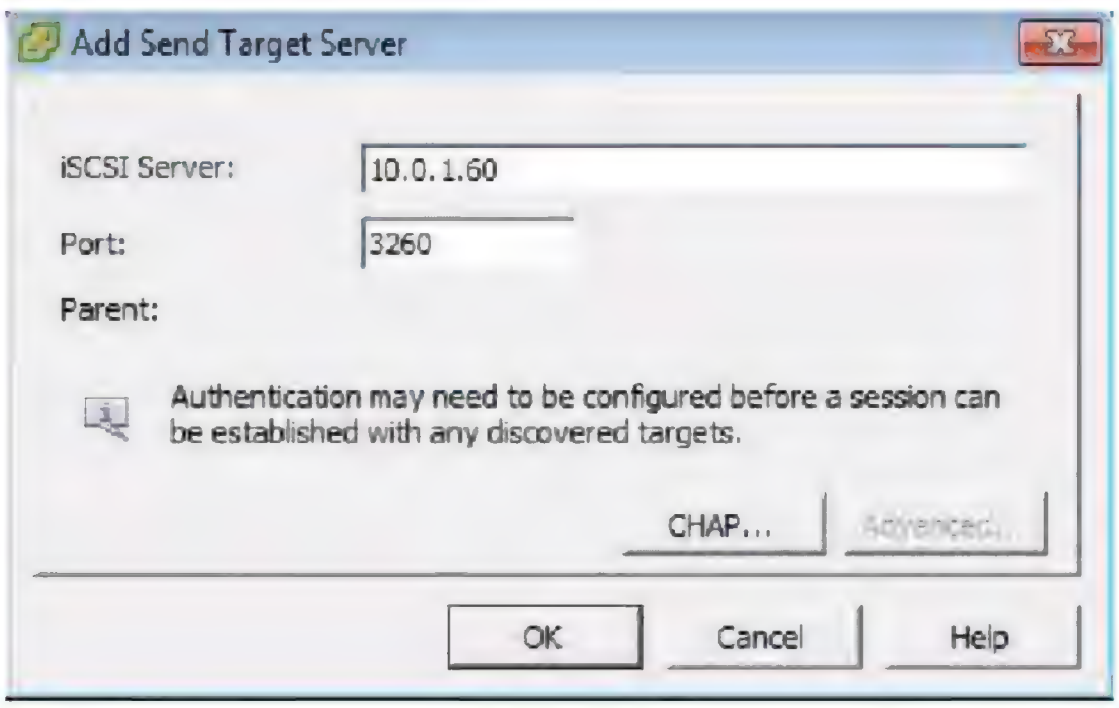
1. Right Click on iSCSI Software Adaptor, Click on Properties



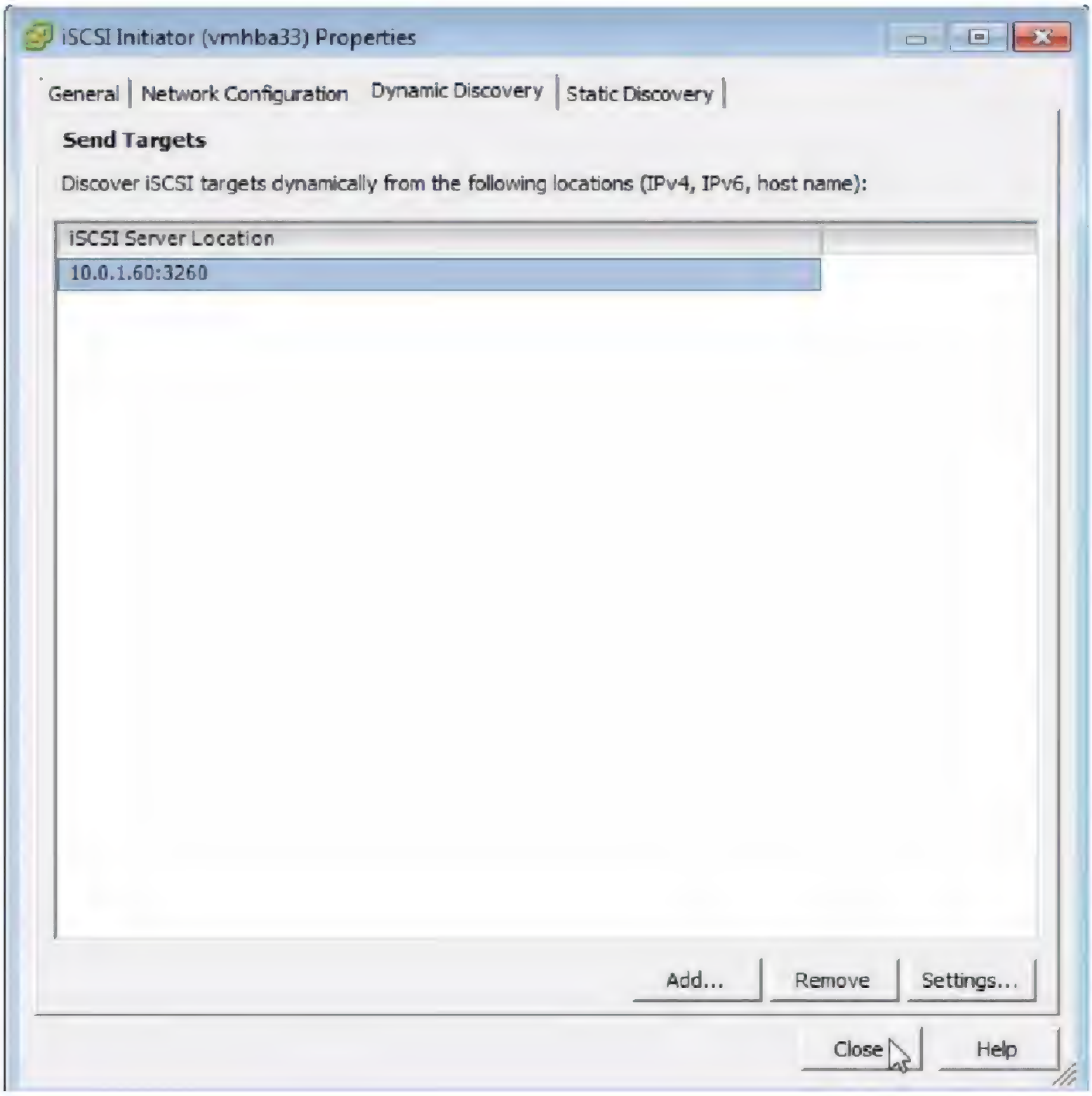
2. Select Dynamic Discovery Tab



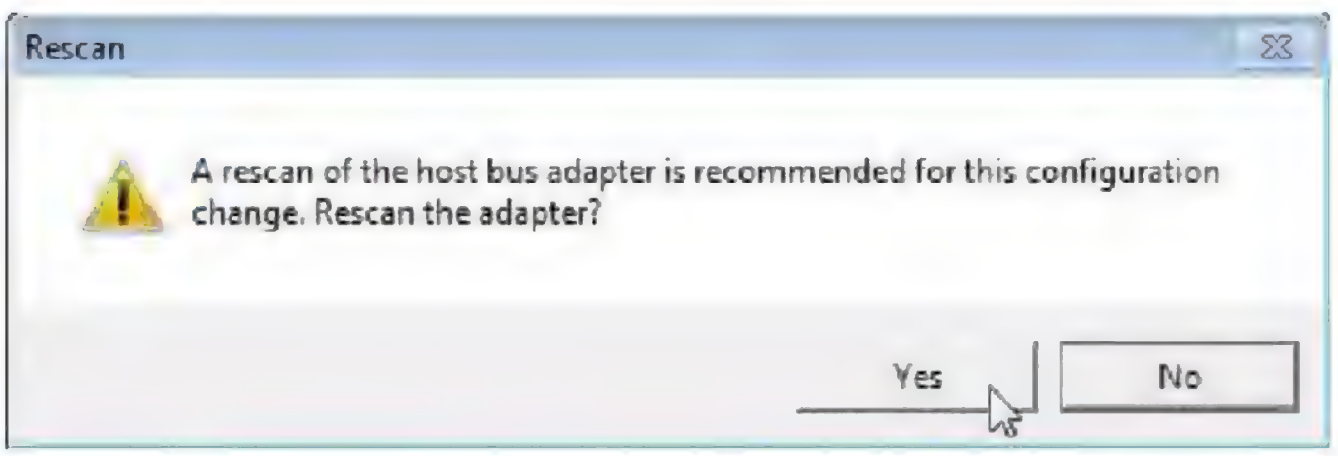
3. Add iSCSI server



4. Enter the IP/Hostname of iSCSI Server, OK to continue

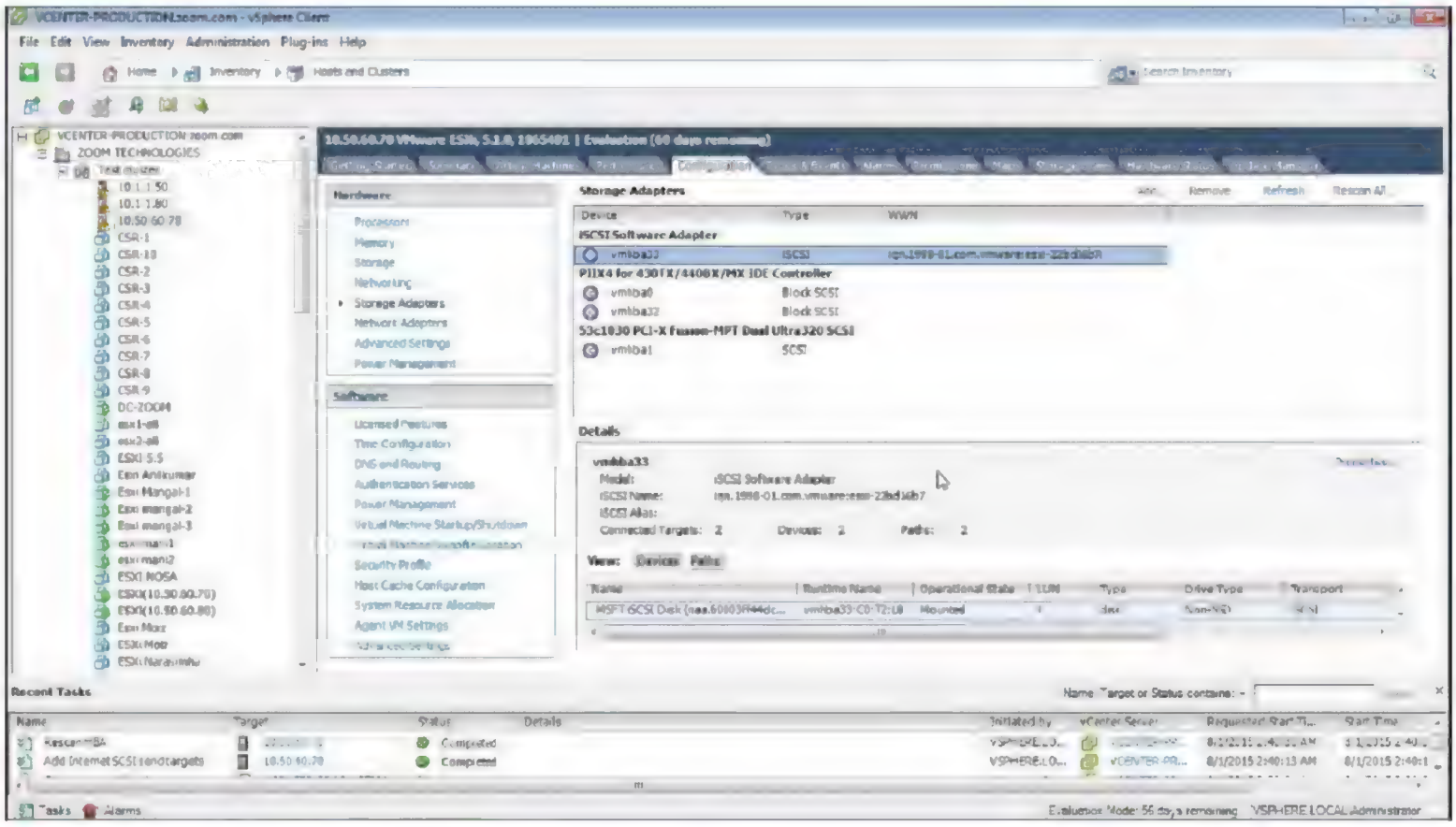


5. Close



6. Yes to rescan the adaptor

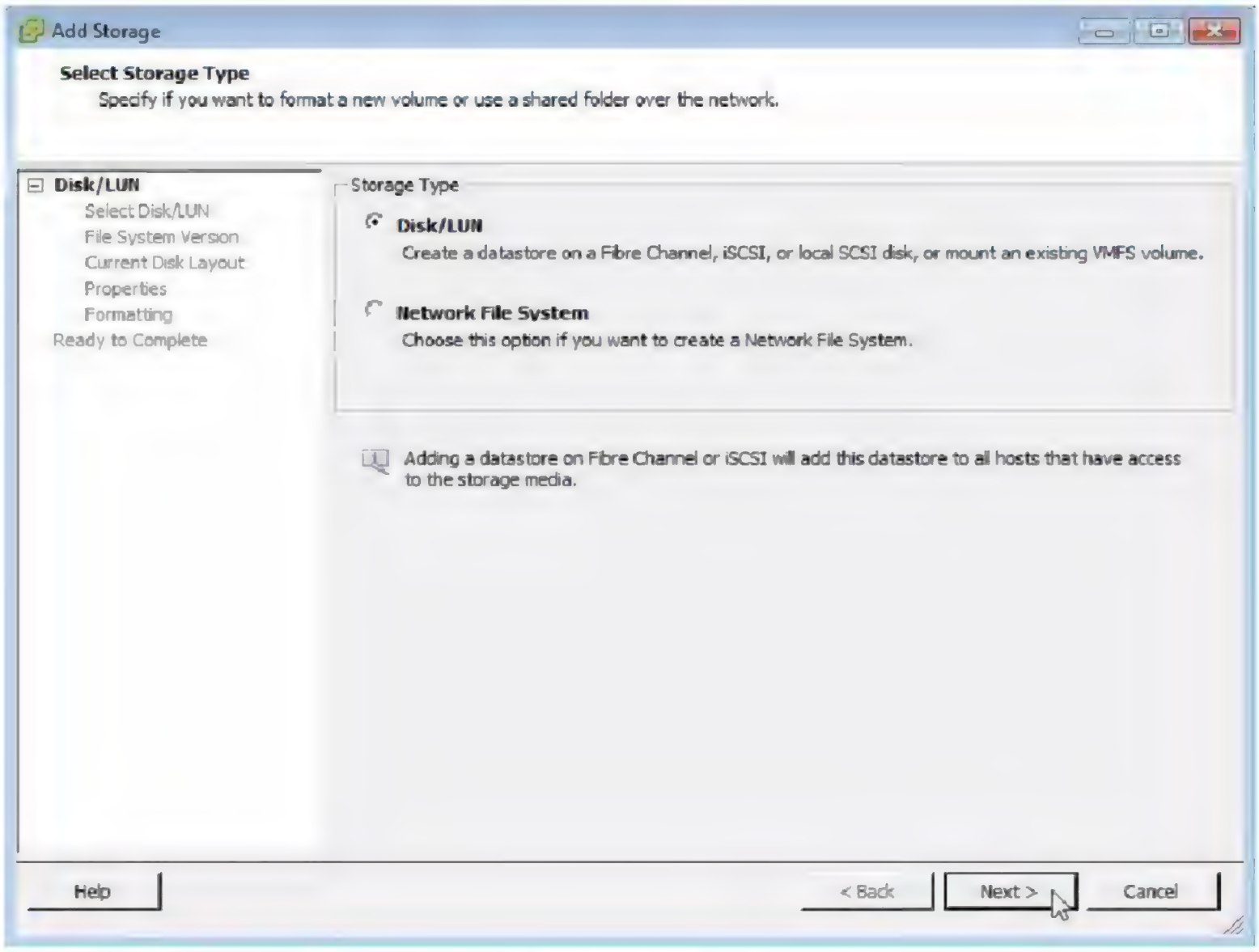
Adding Storage



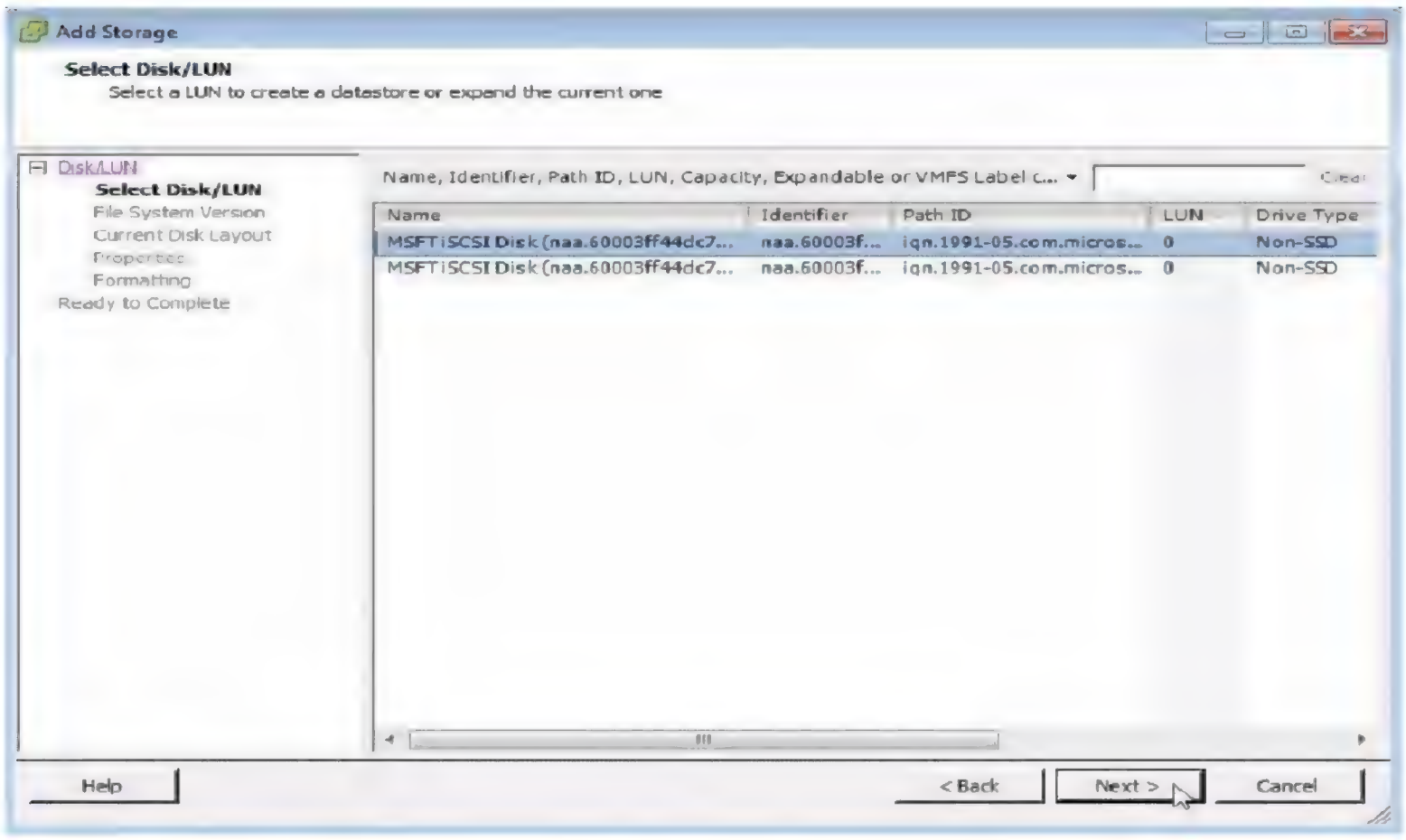
Steps:

1. Click on Storage

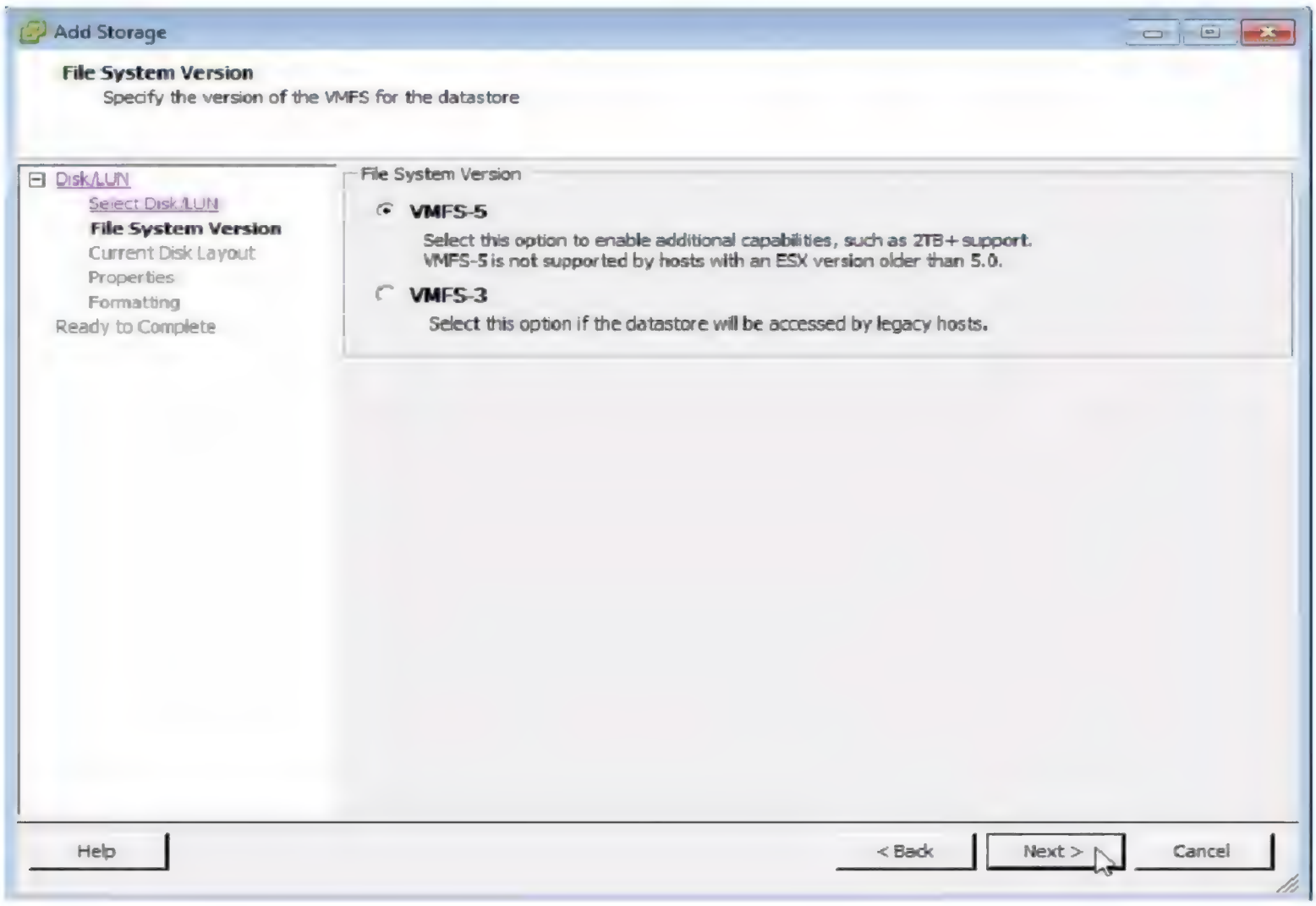
2. Click on Add Storage



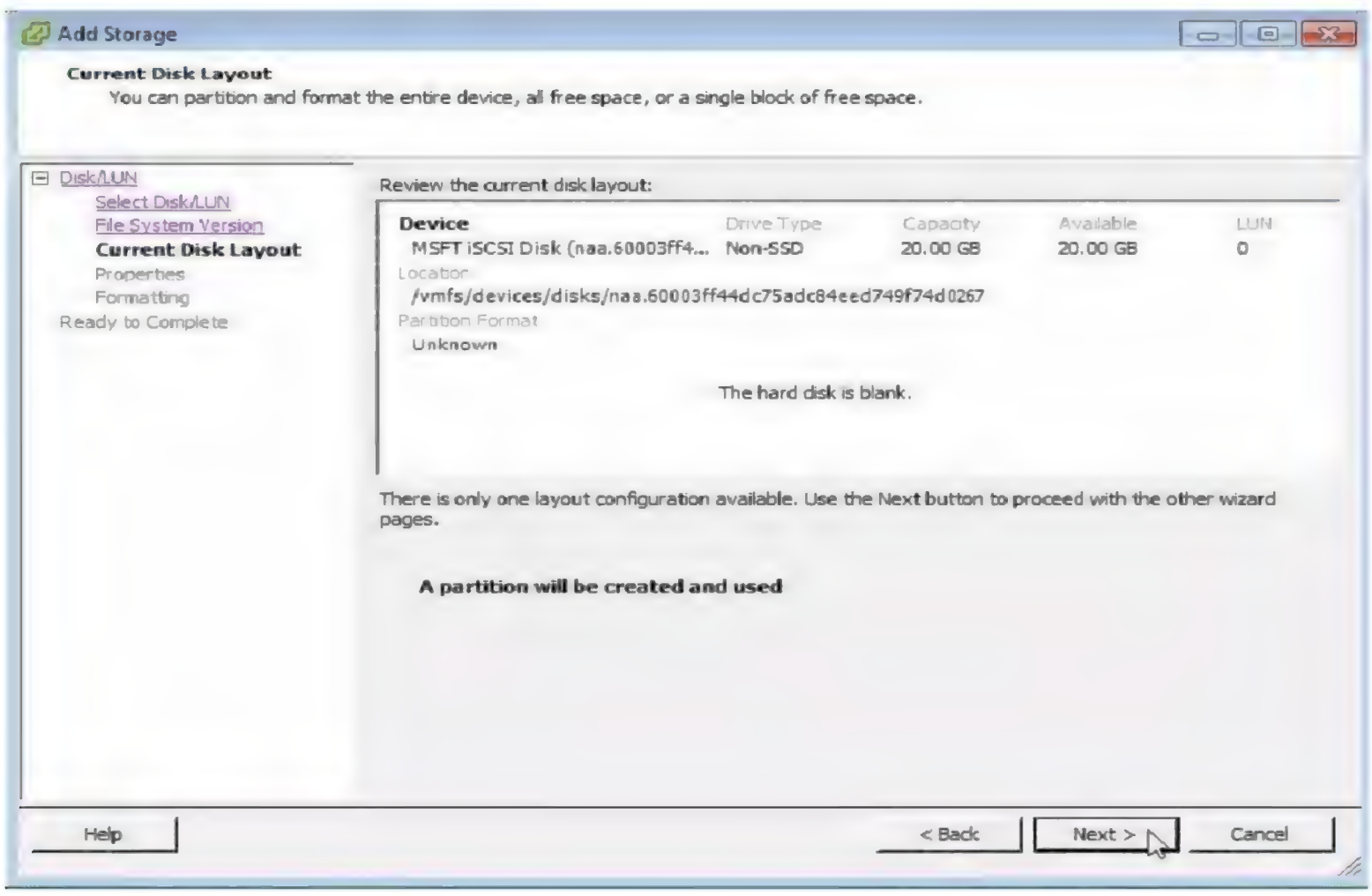
3. Select Disk/LUN, Next to continue



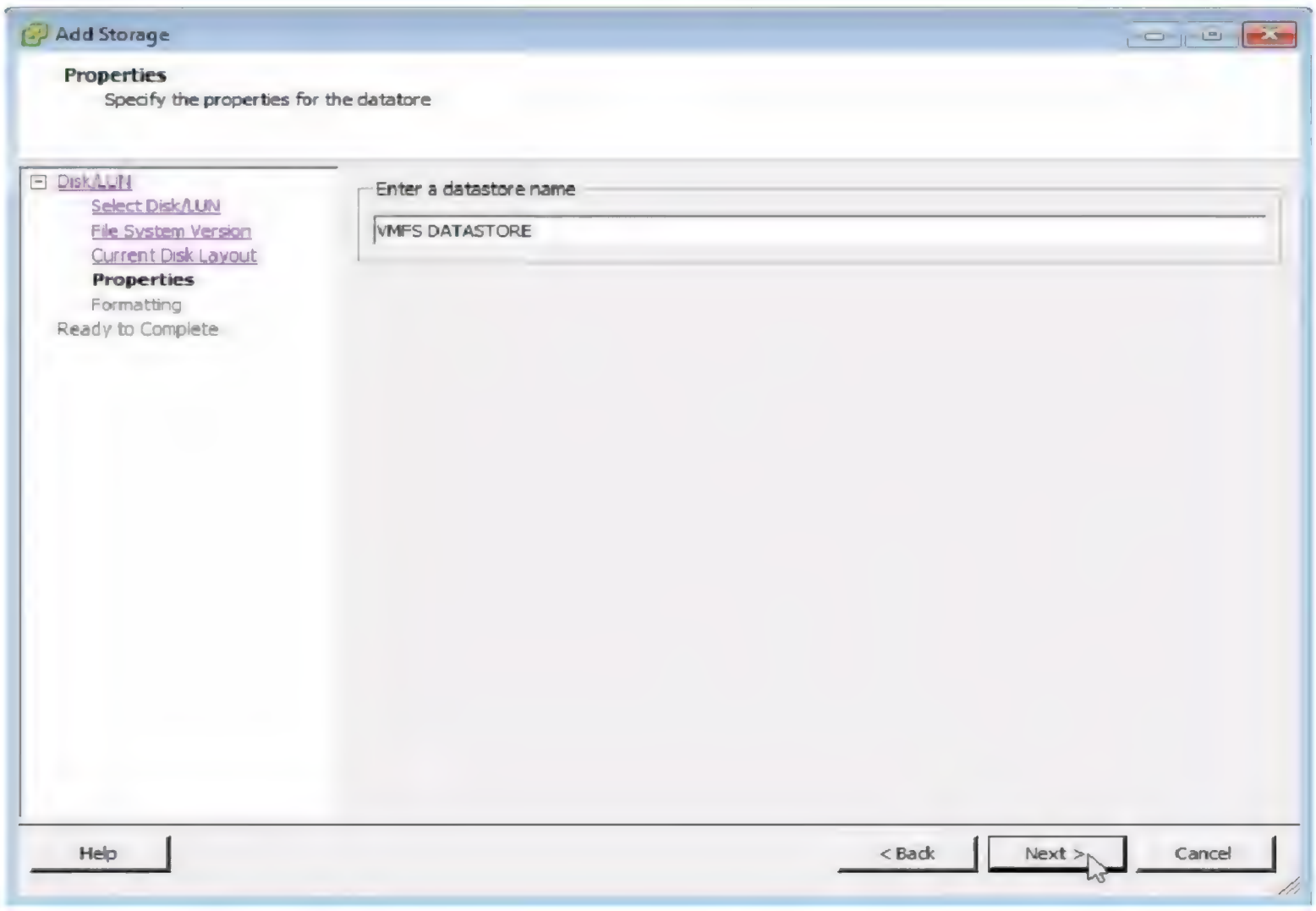
4. Select a LUN, Next to continue



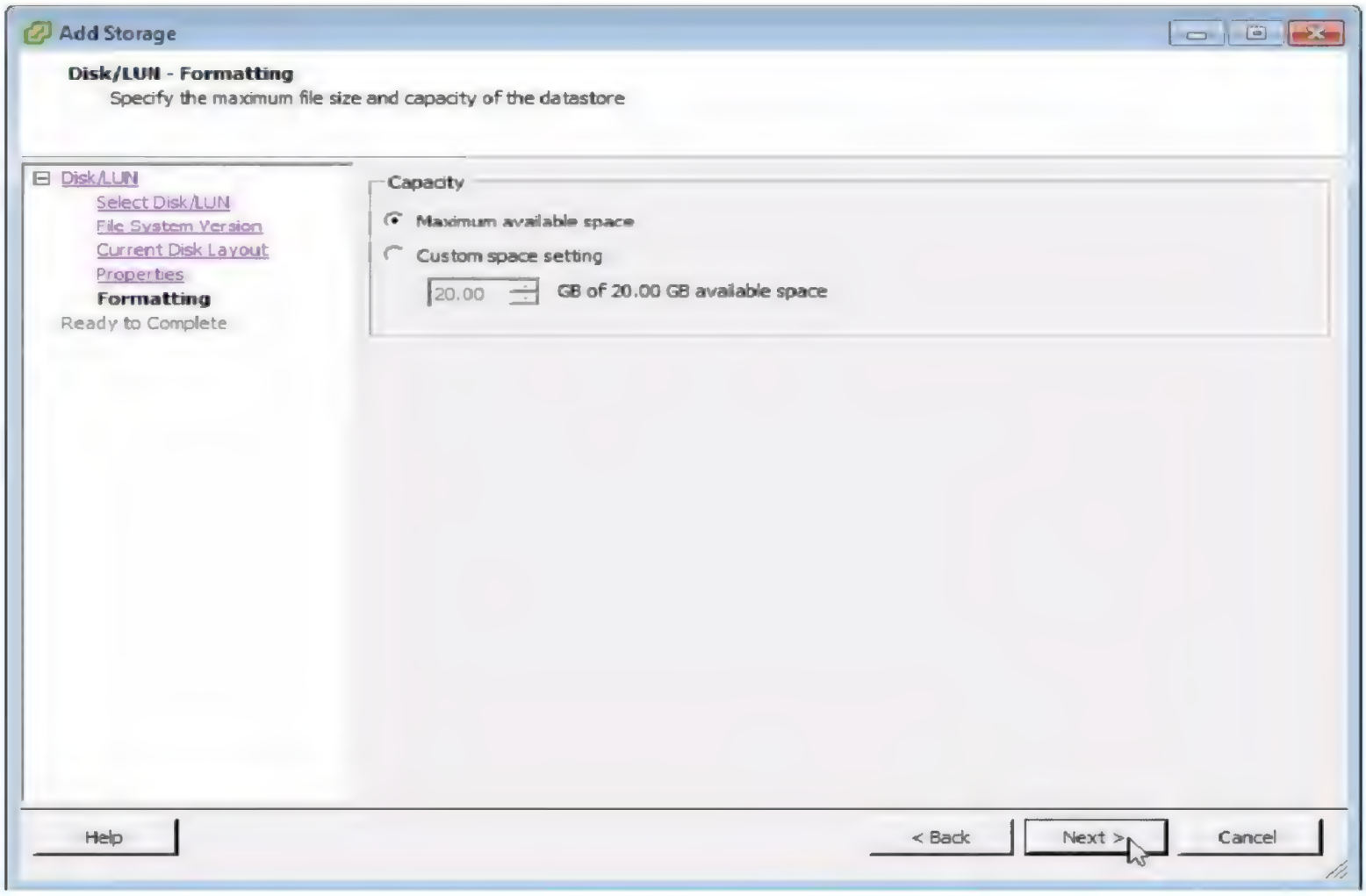
5. Select VMFS version based on your requirement, Next to continue



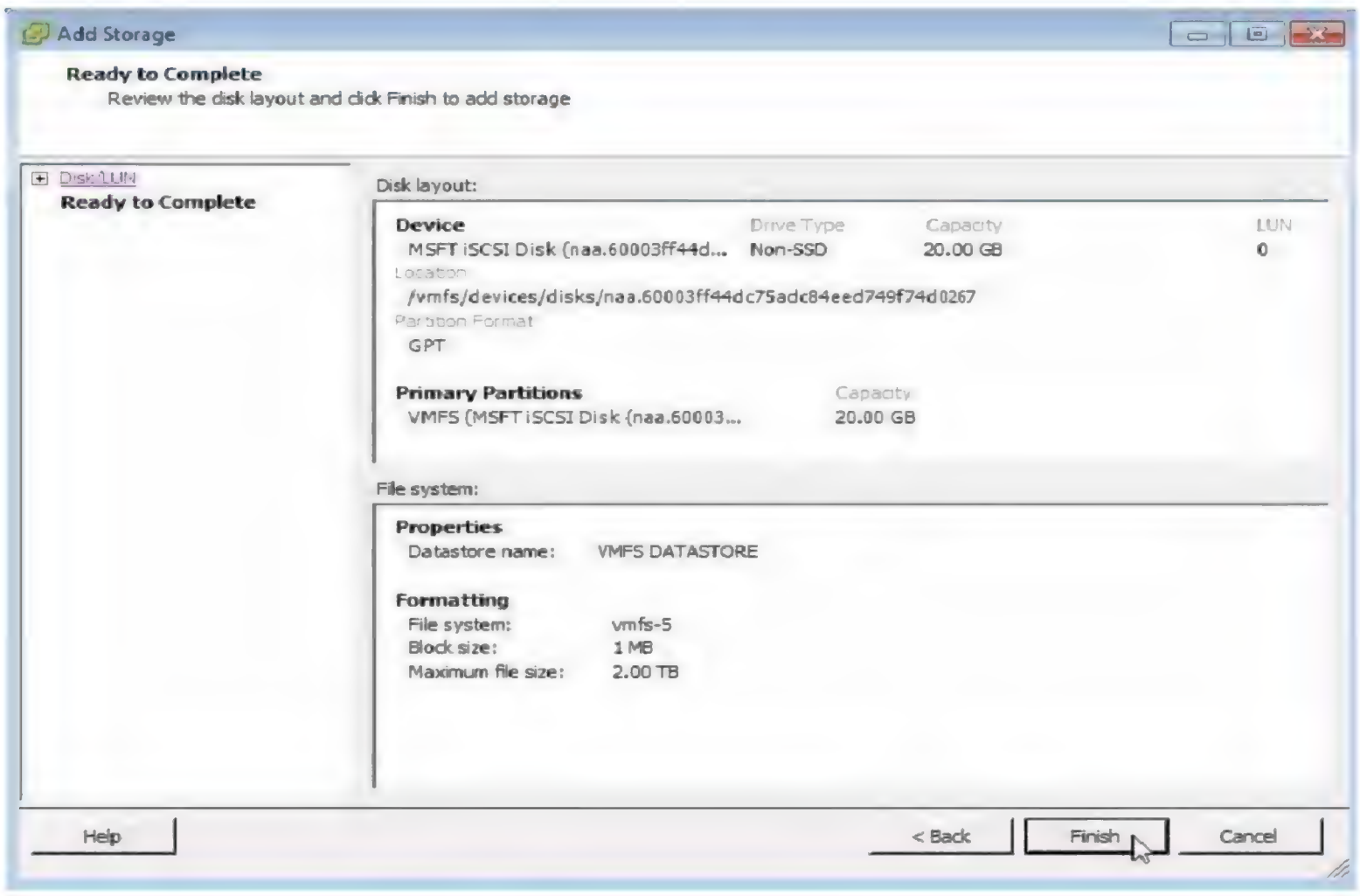
6. A partition will be created and used, Next to continue



7. Enter a datastore name, Next to continue

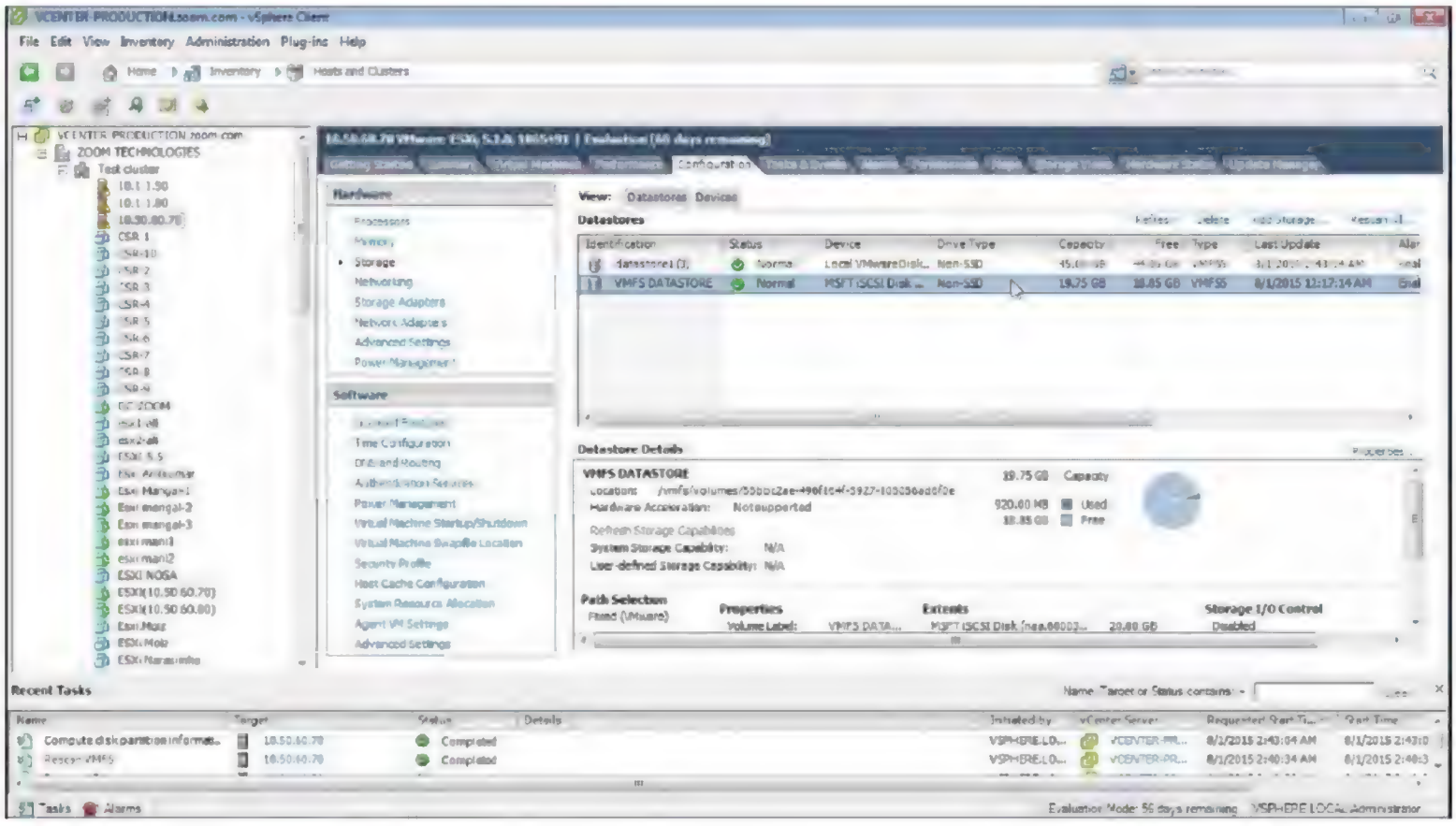


8. Specify the capacity of the datastore, Next to continue



9. Finish to complete the adding of storage

Verification:



You can **observe** a new datastore has been added.

LAB-12: SNAPSHOTS OF VM

Objective:

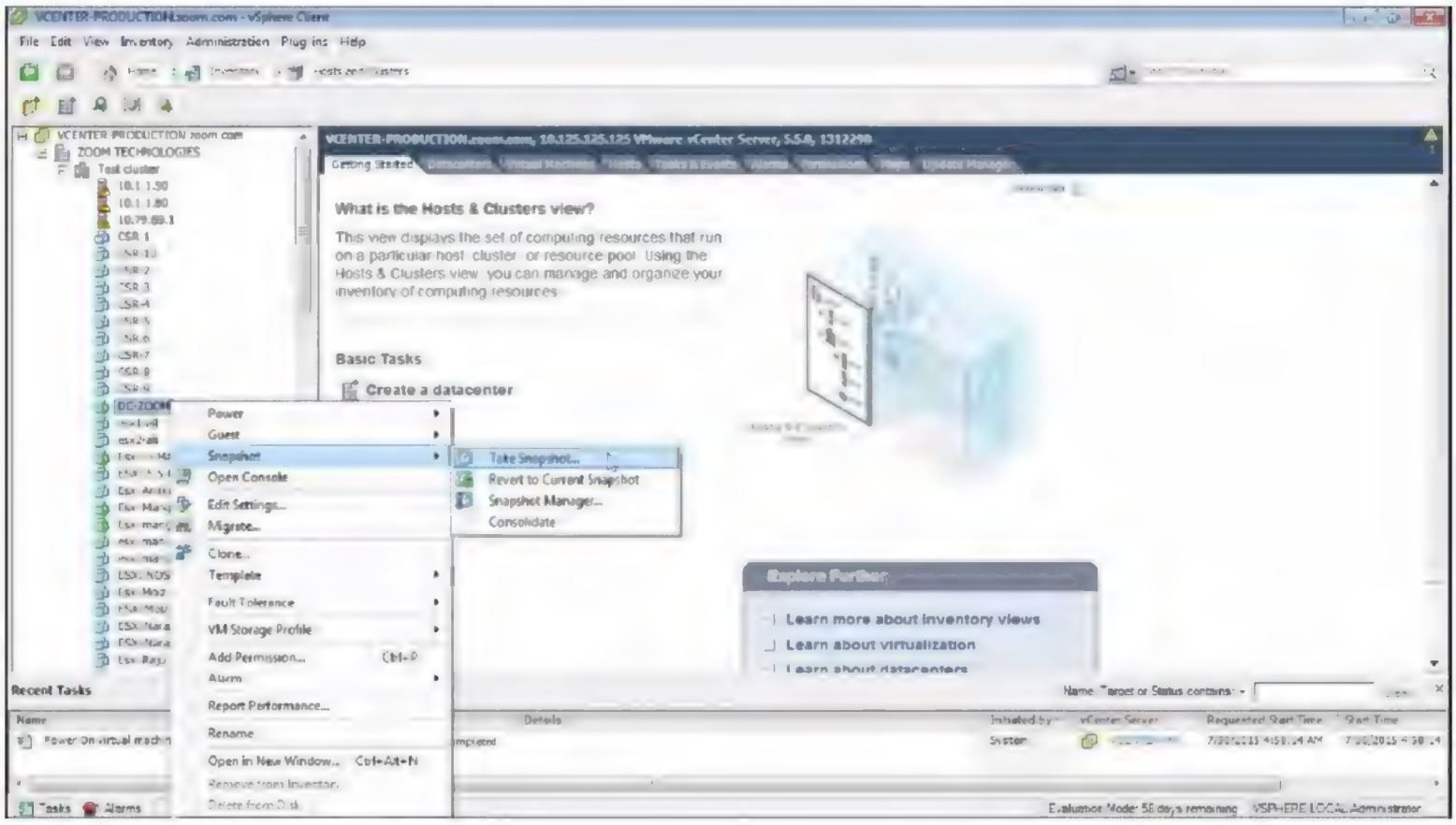
To manage Snapshots of the Virtual Machine

Tasks:

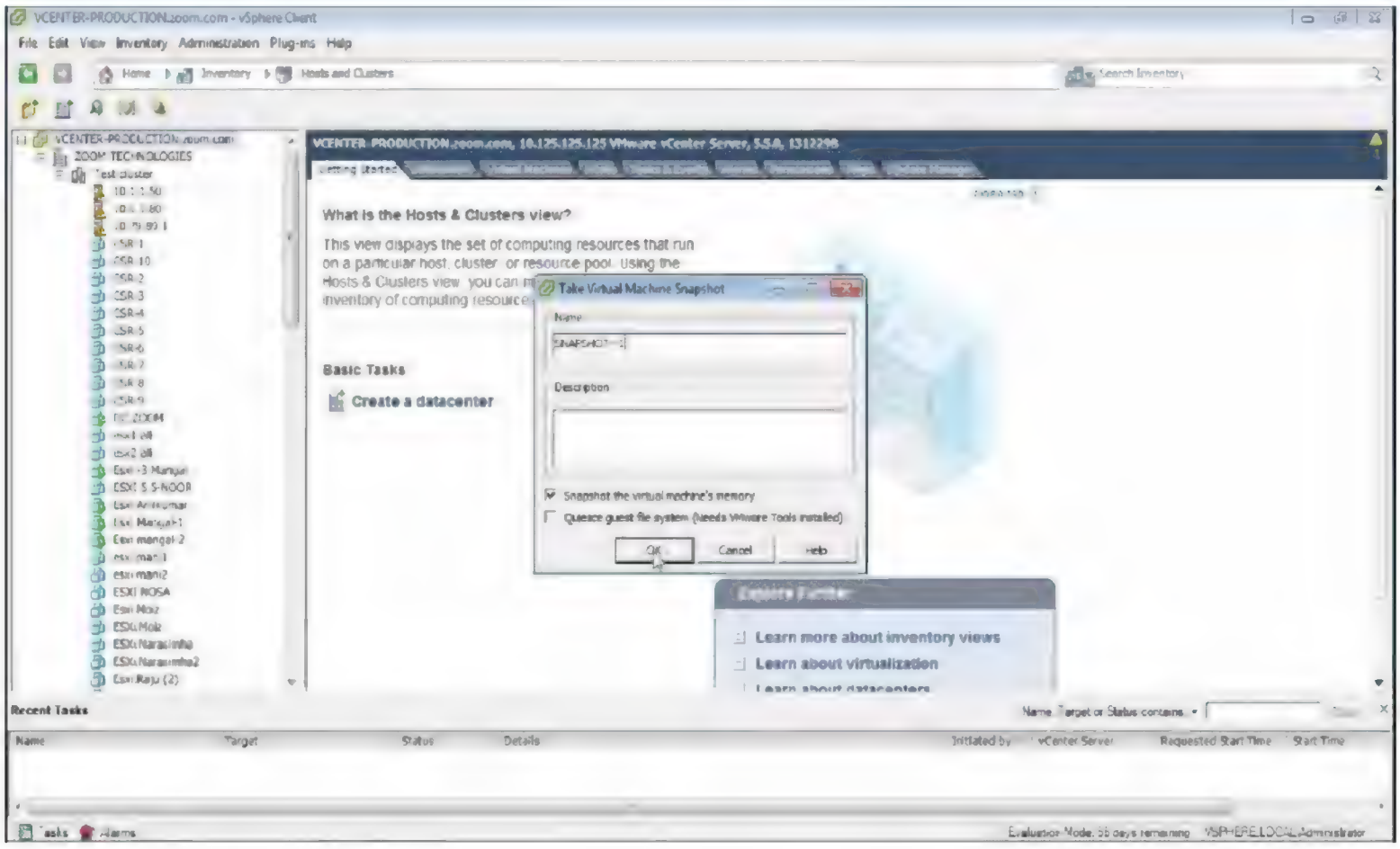
- Create a snapshot
- Revert to a snapshot
- Delete a snapshot

Steps:

1. Login to ESXi Host/vCenter Server

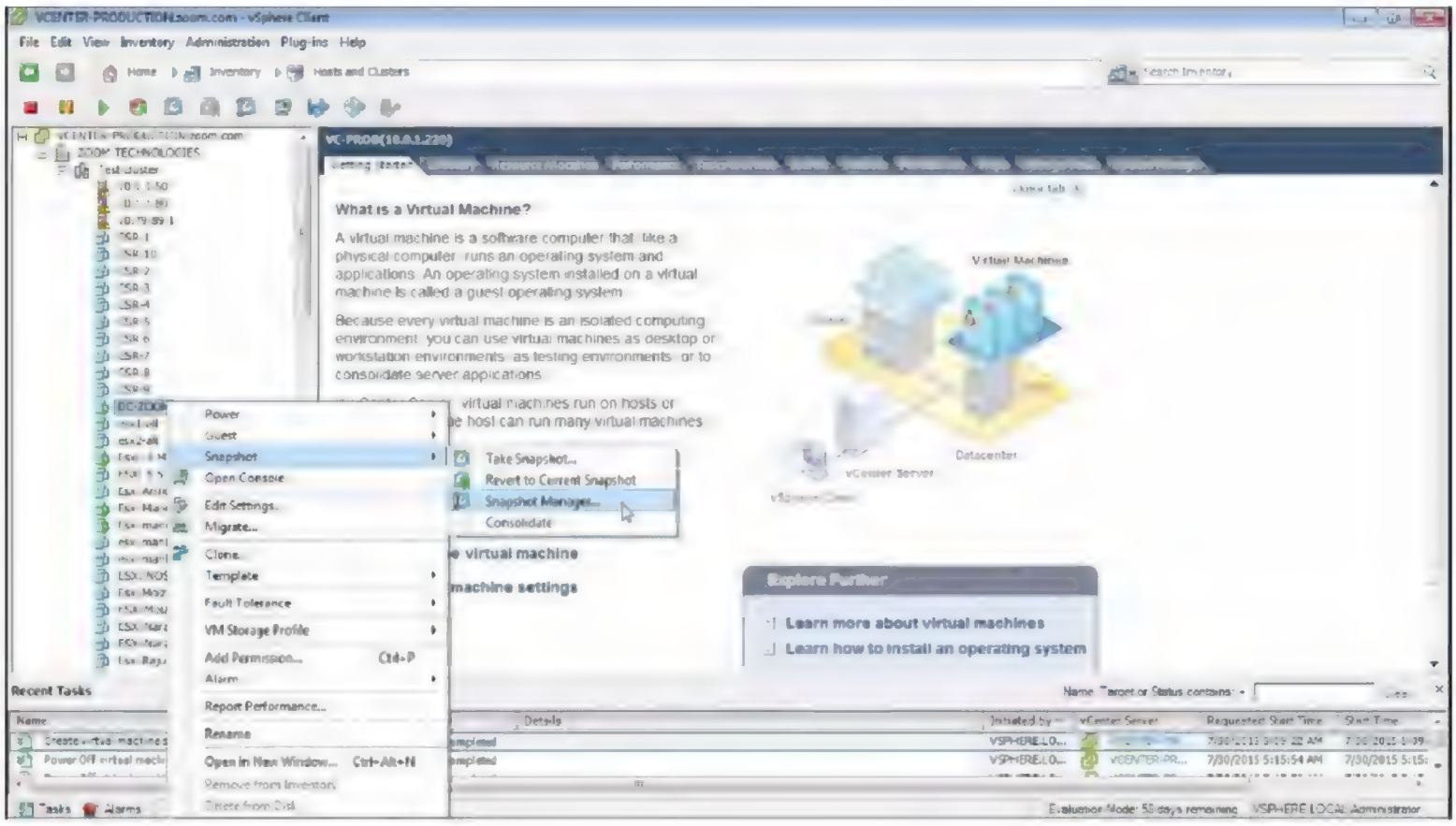


2. Right Click on VM - Snapshot - Take Snapshot



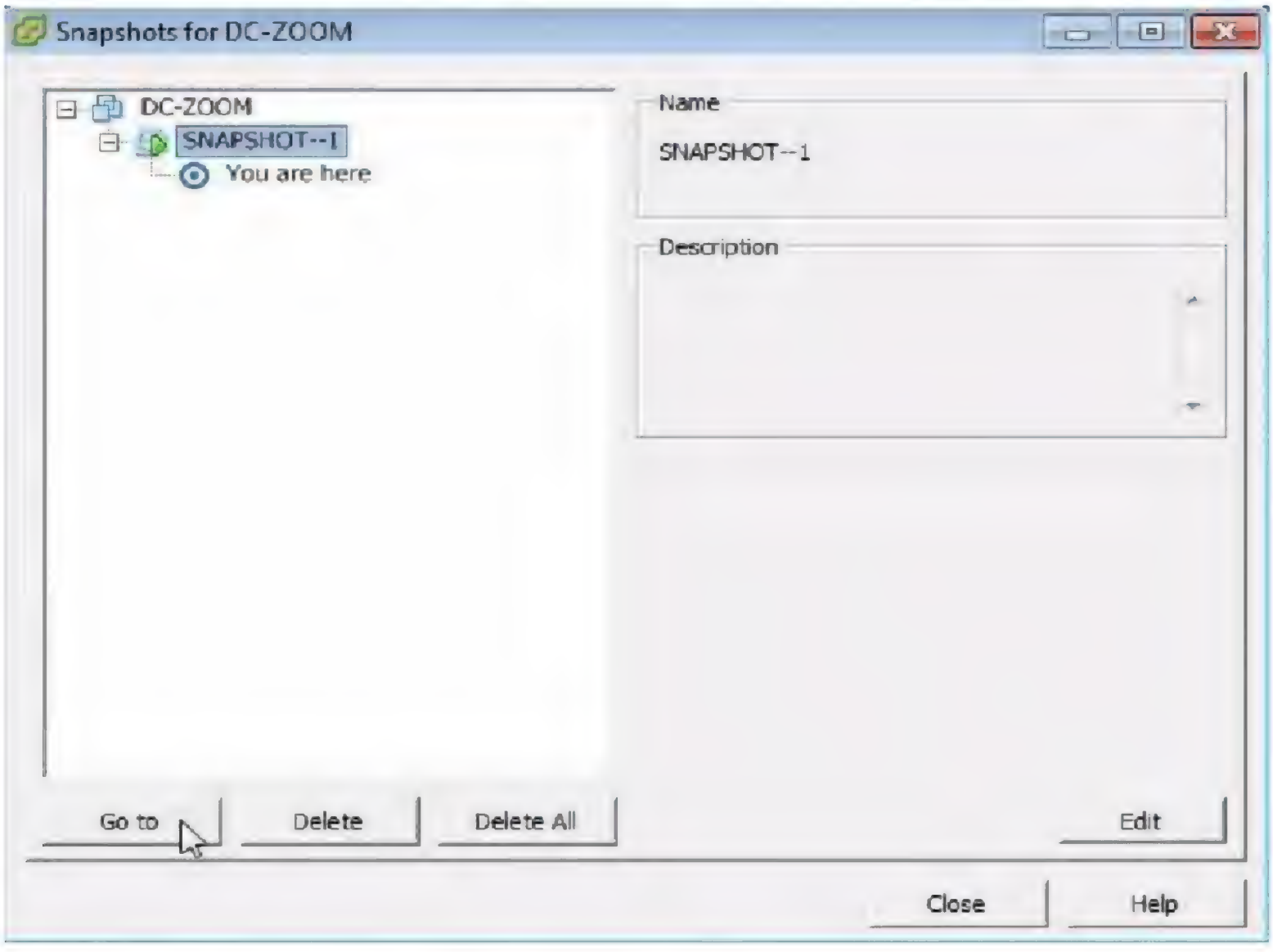
3. Name the snapshot - OK

Reverting back to snapshot

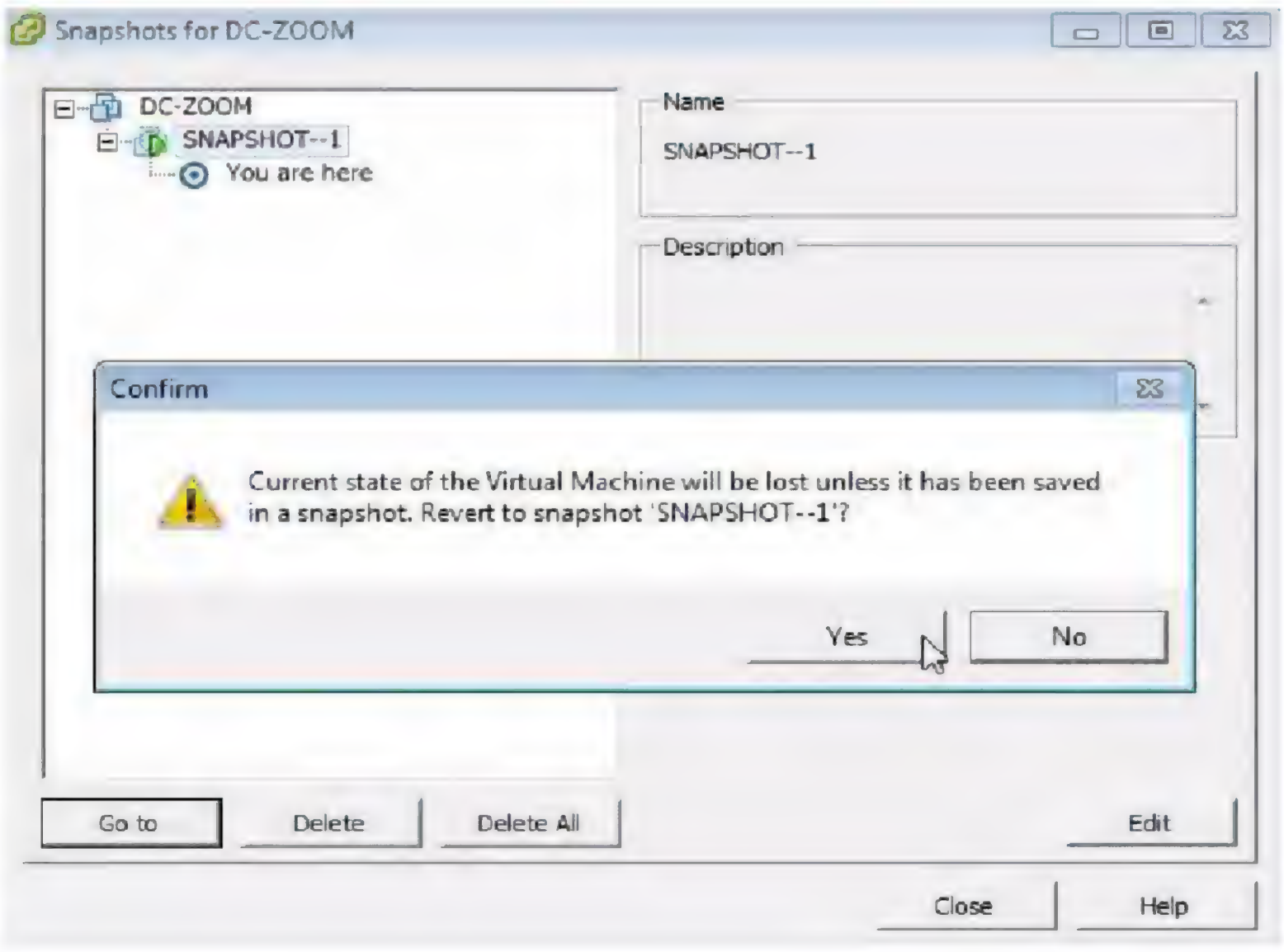


Steps:

1. Right click VM - Snapshot - Snapshot Manager

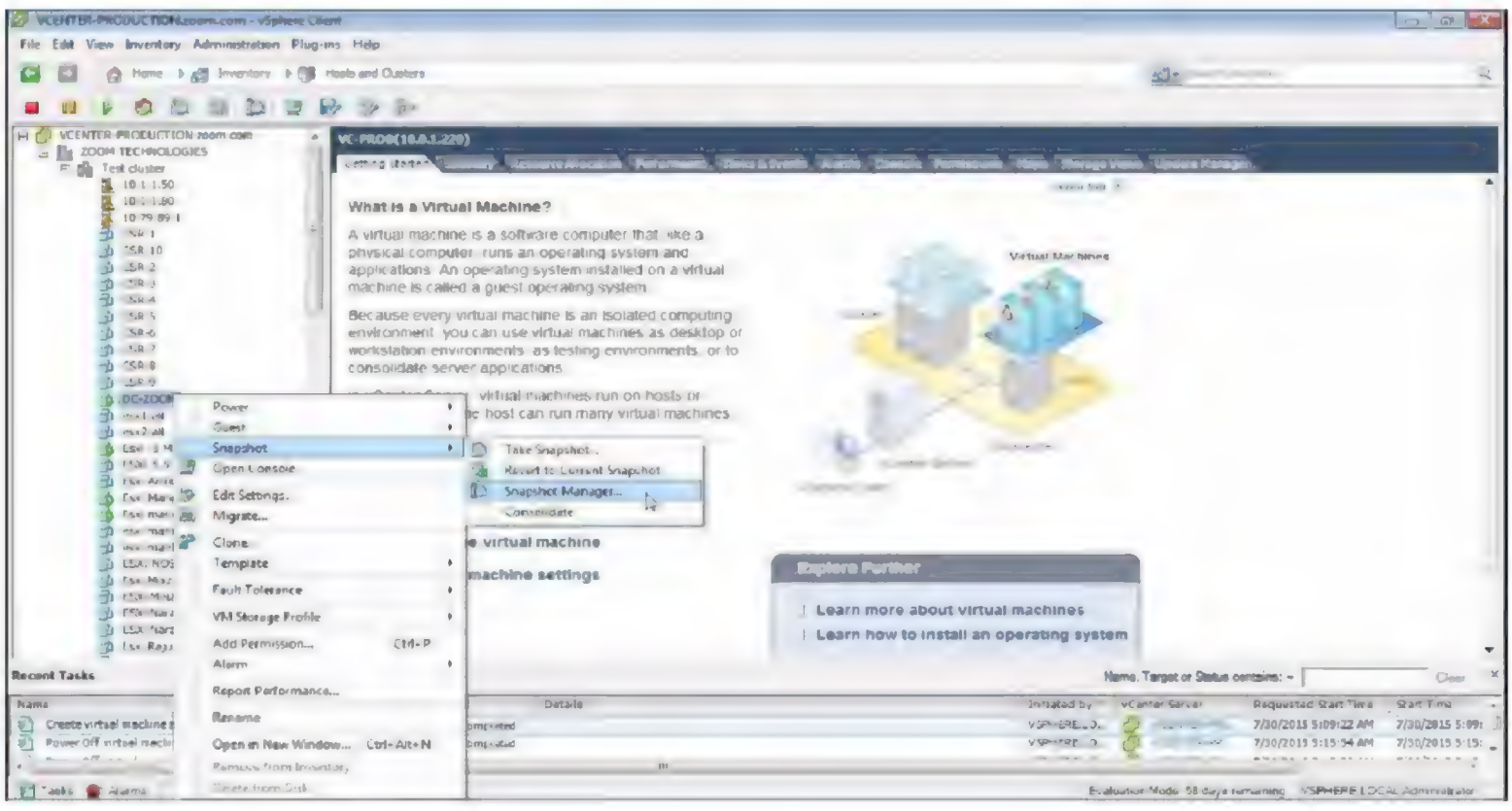


2. Select Snapshot - click on Go to



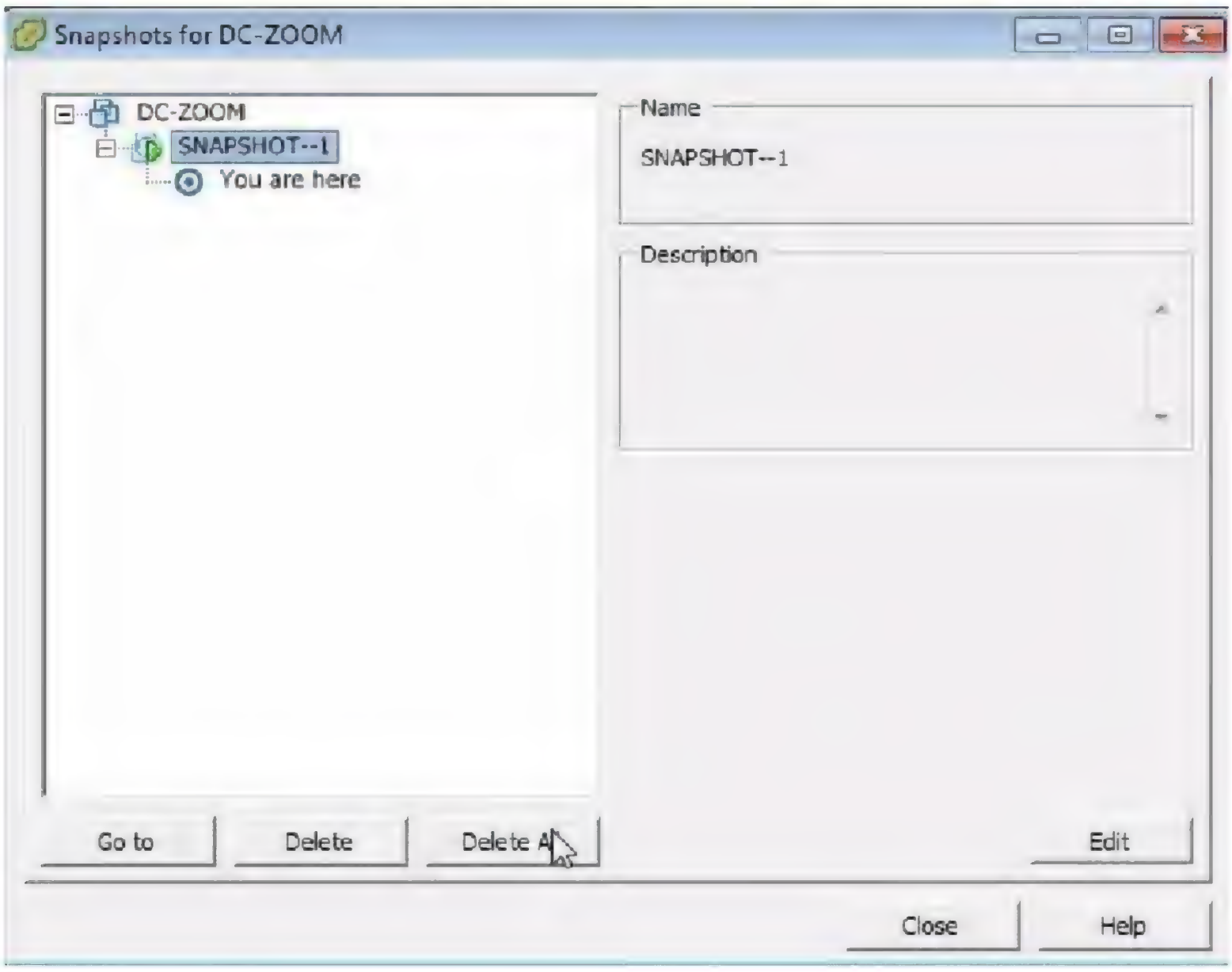
3. Yes to revert to snapshot

Deleting a Snapshot

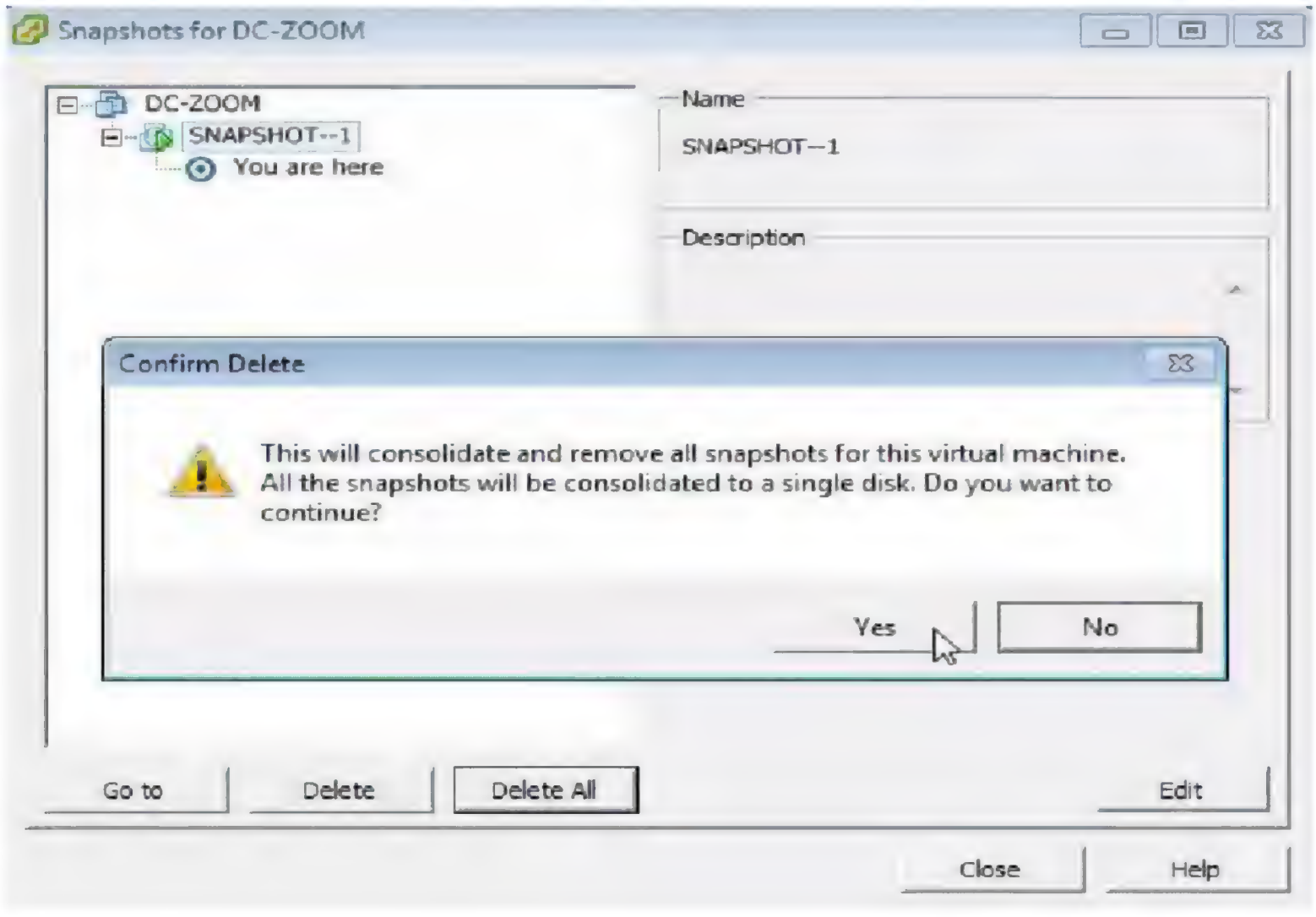


Steps:

1. Right click VM - Snapshot - Snapshot Manager



2. Select Snapshot - Delete All



3. Yes to delete the snapshot

LAB-13: CLONE A VM

Objective:

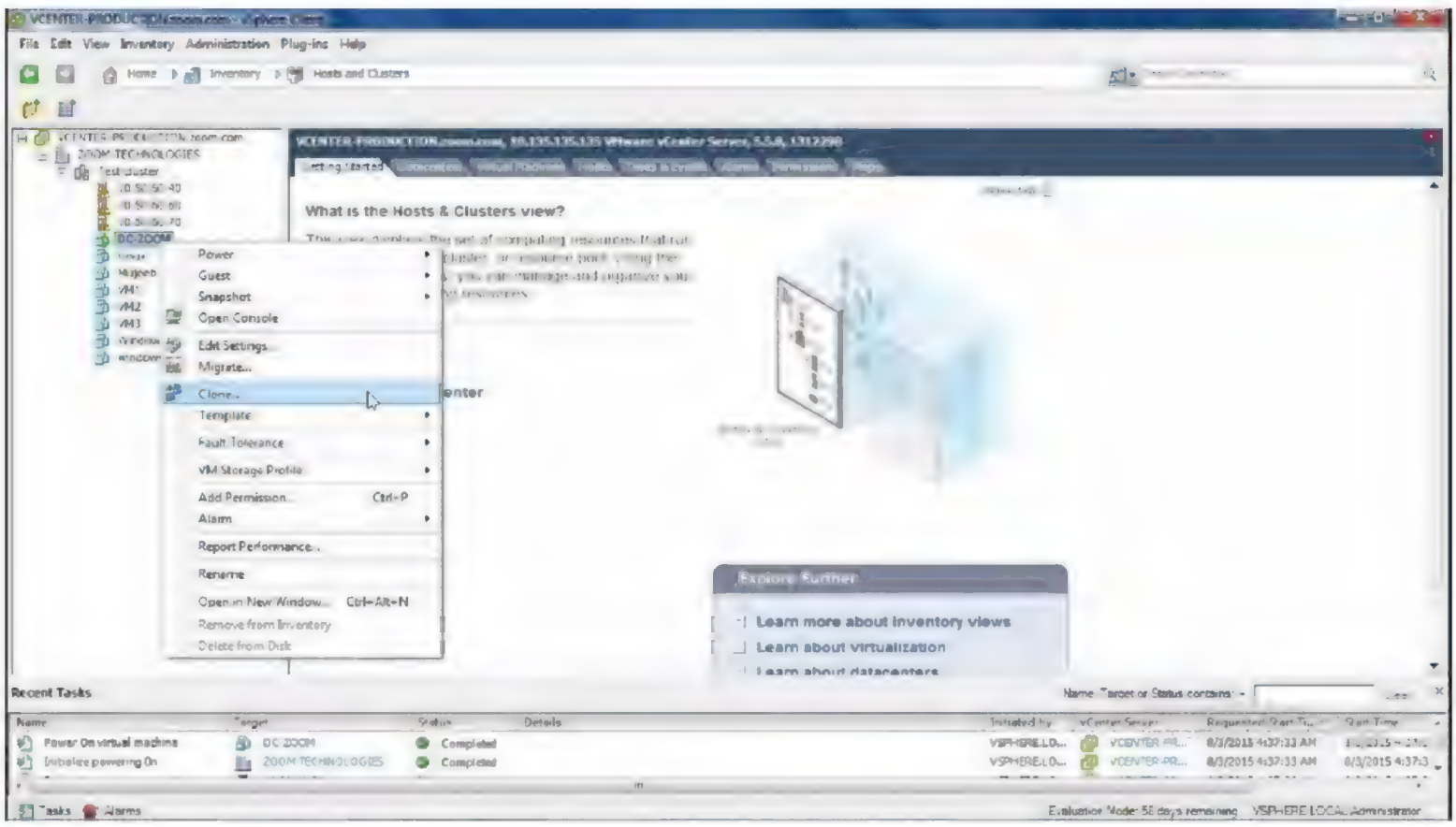
To create a Clone of the Virtual Machine

Prerequisites:

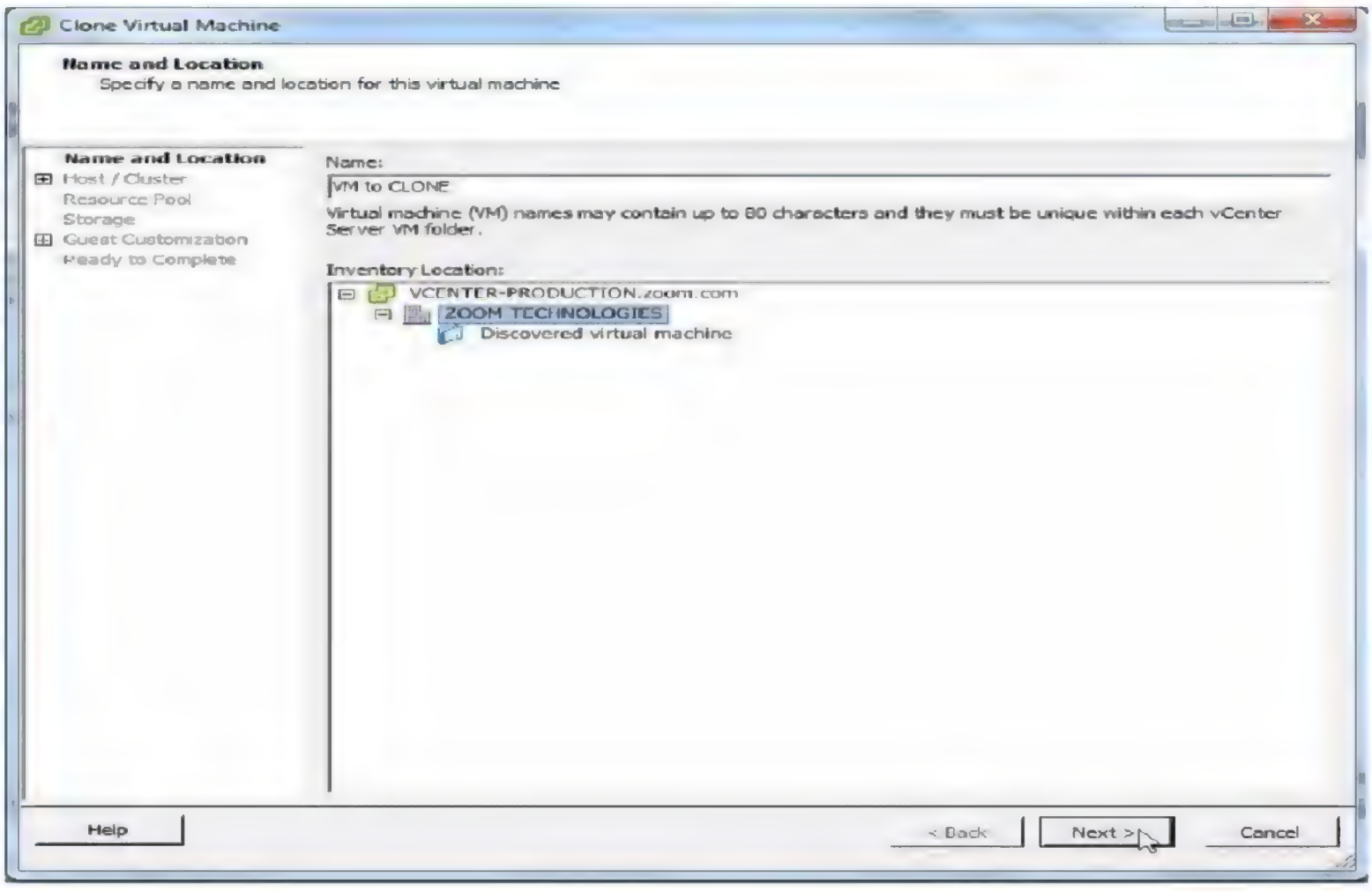
vCenter Server

Steps:

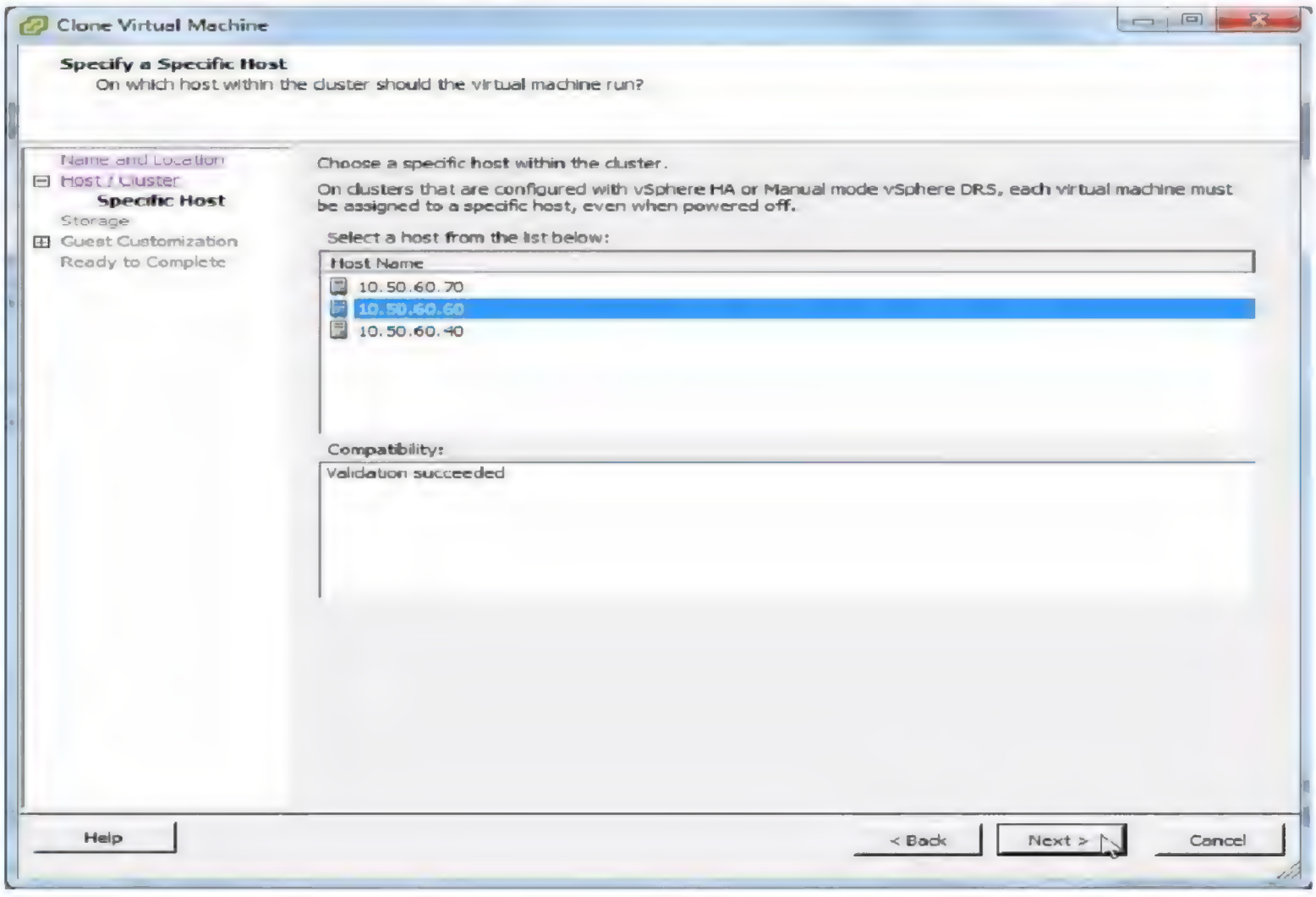
1. Login to vCenter Server



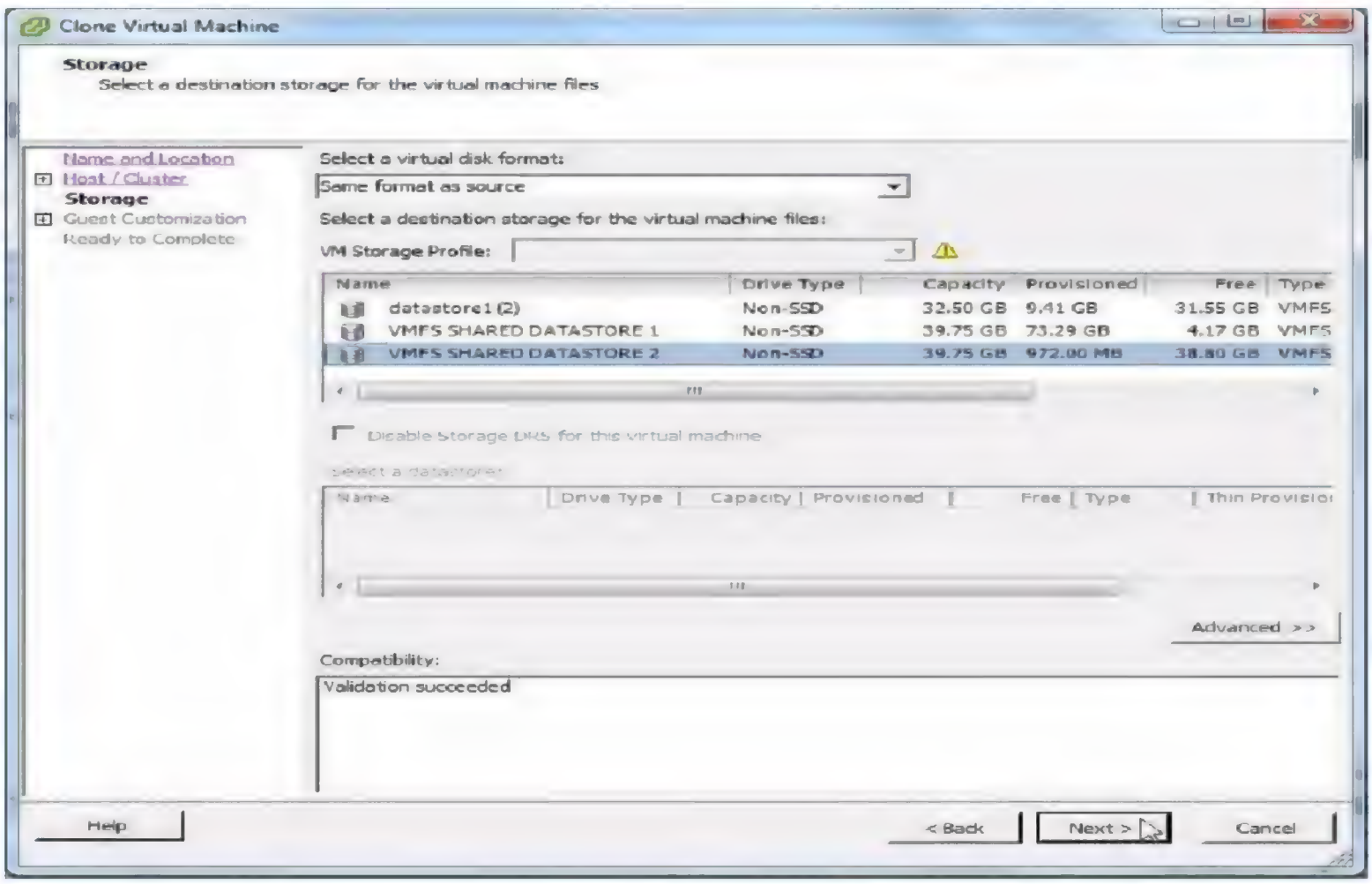
2. Right click the VM - Clone



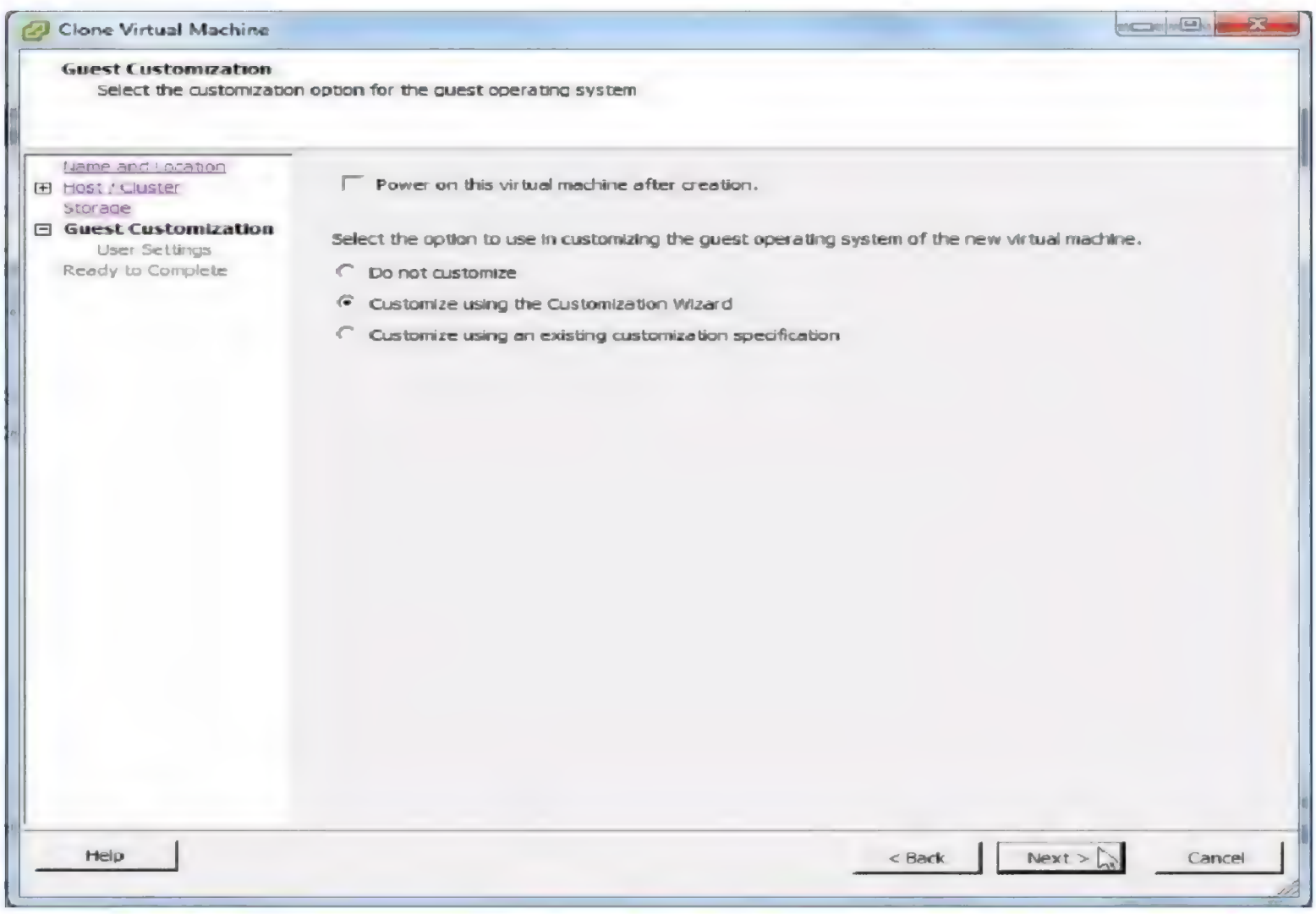
3. Name the clone - Select Datacenter - Next to continue



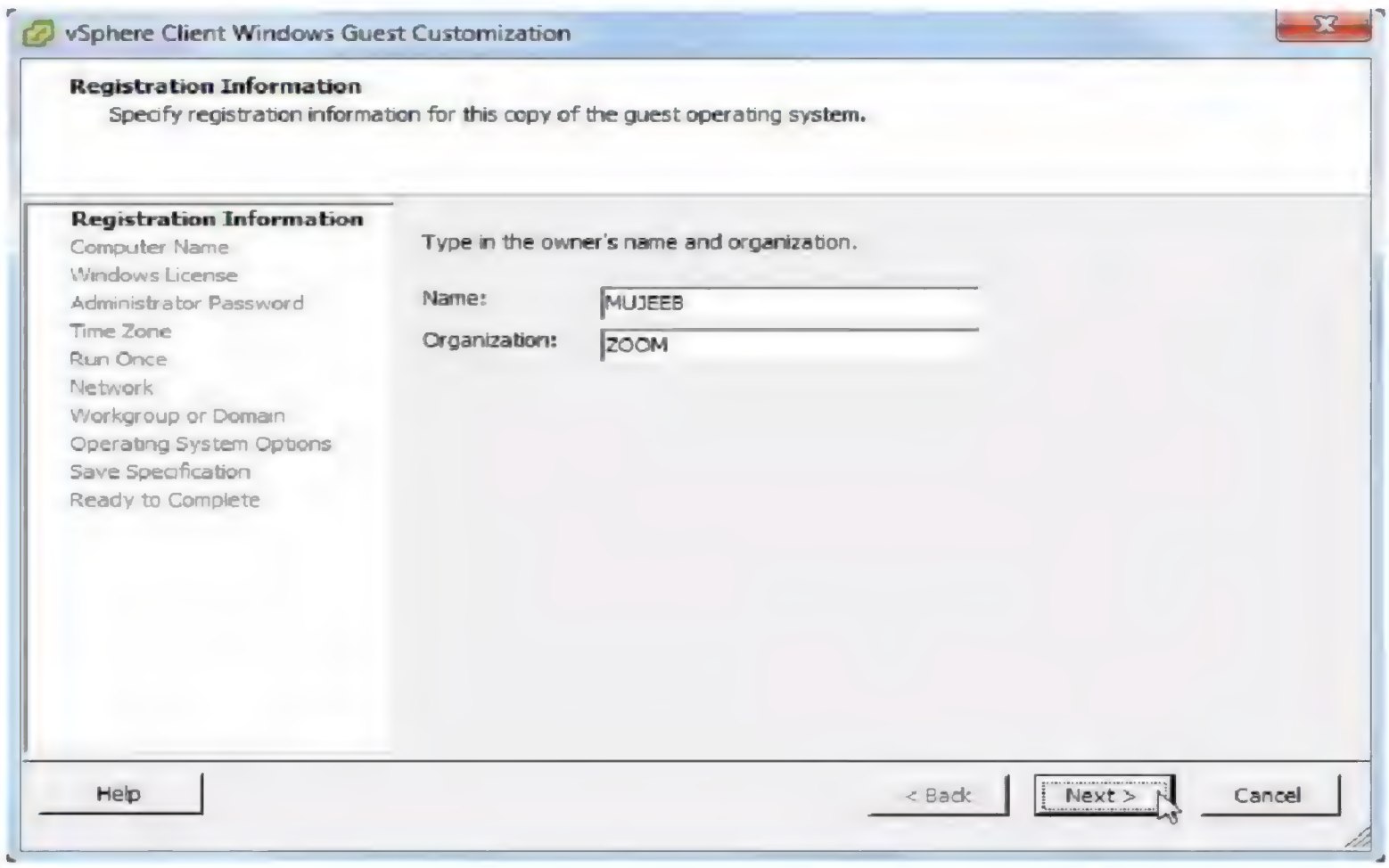
4. Select Host - Next to continue



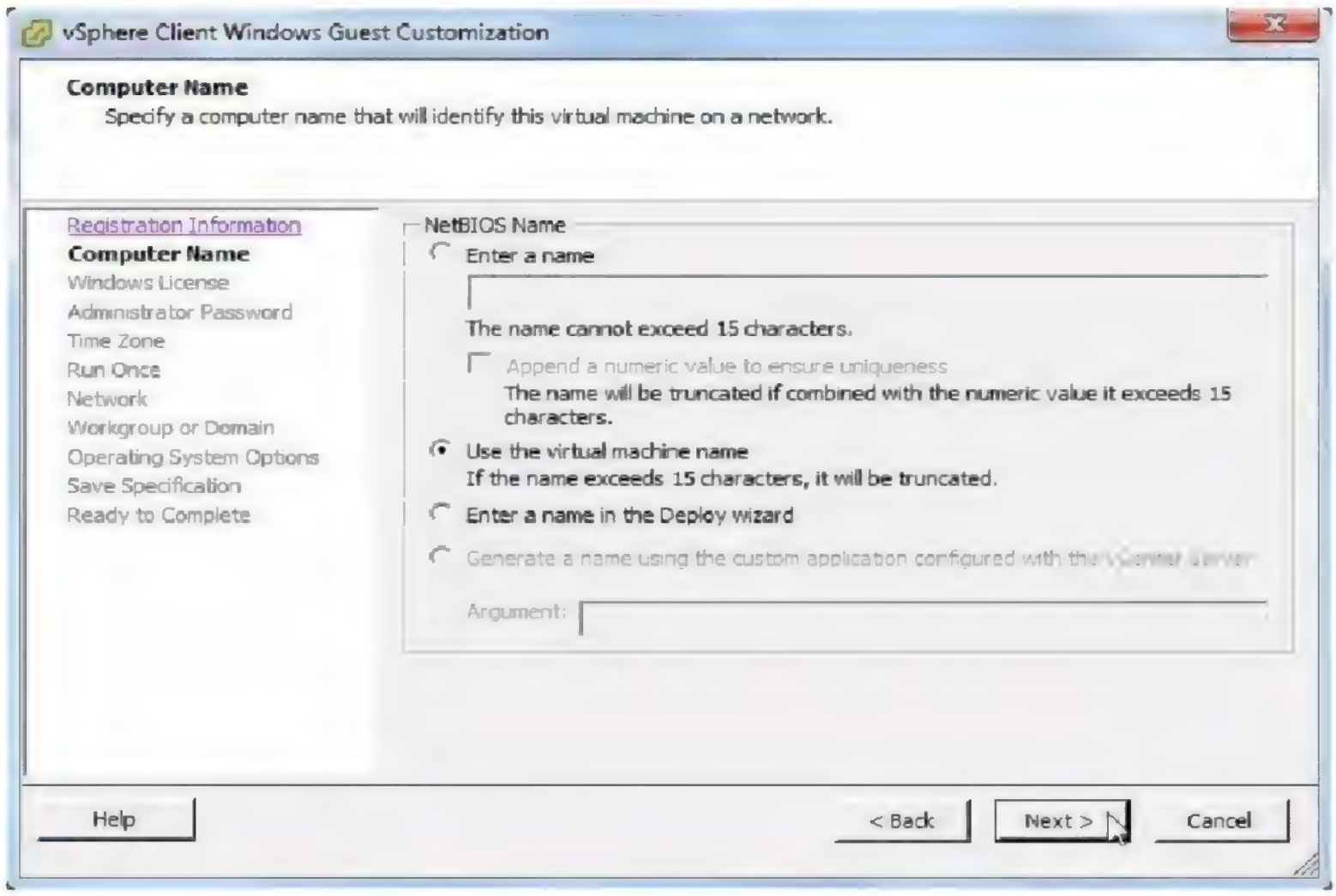
5. Select Datastore - Next to continue



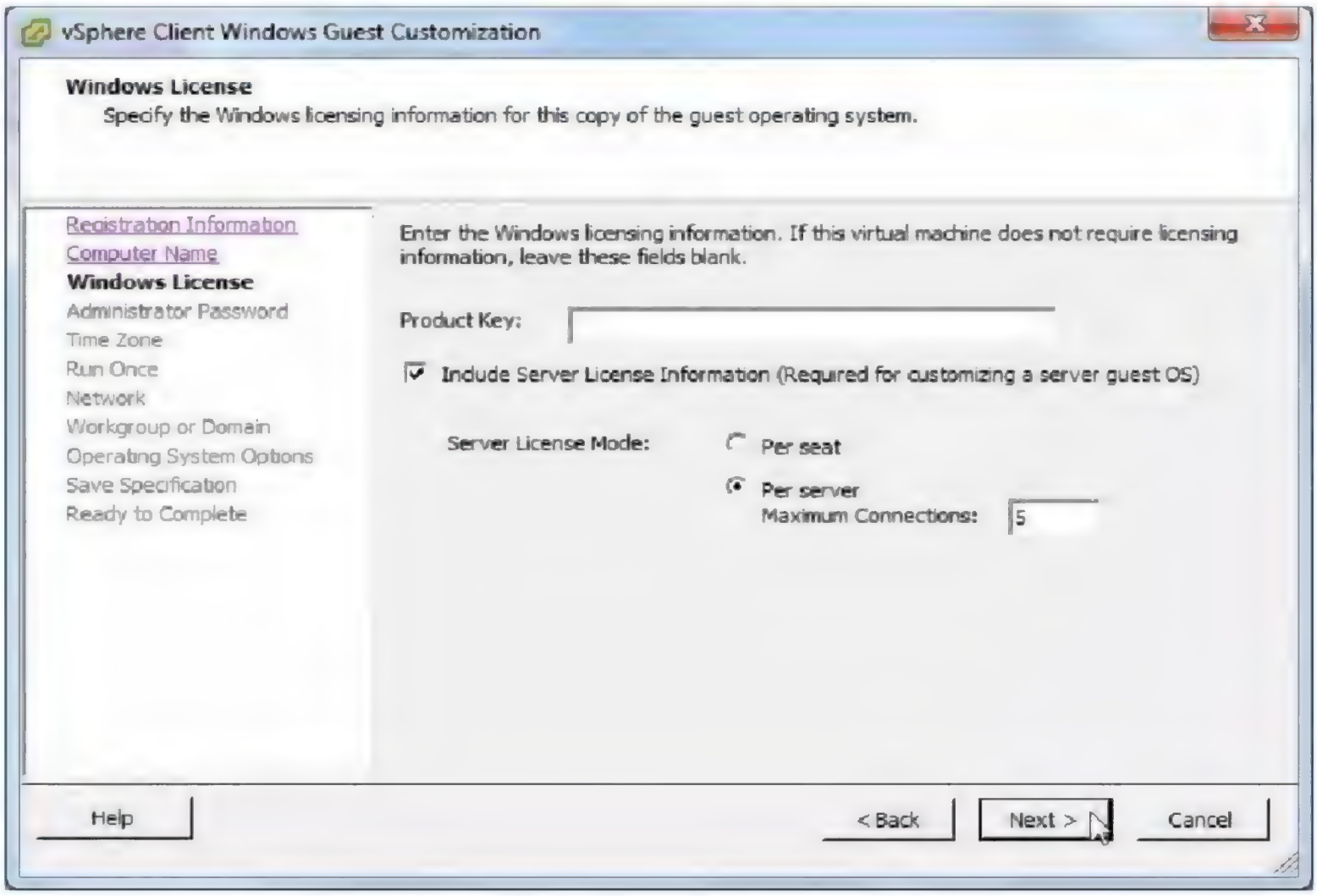
6. Select Customize using the Customization Wizard - Next to continue



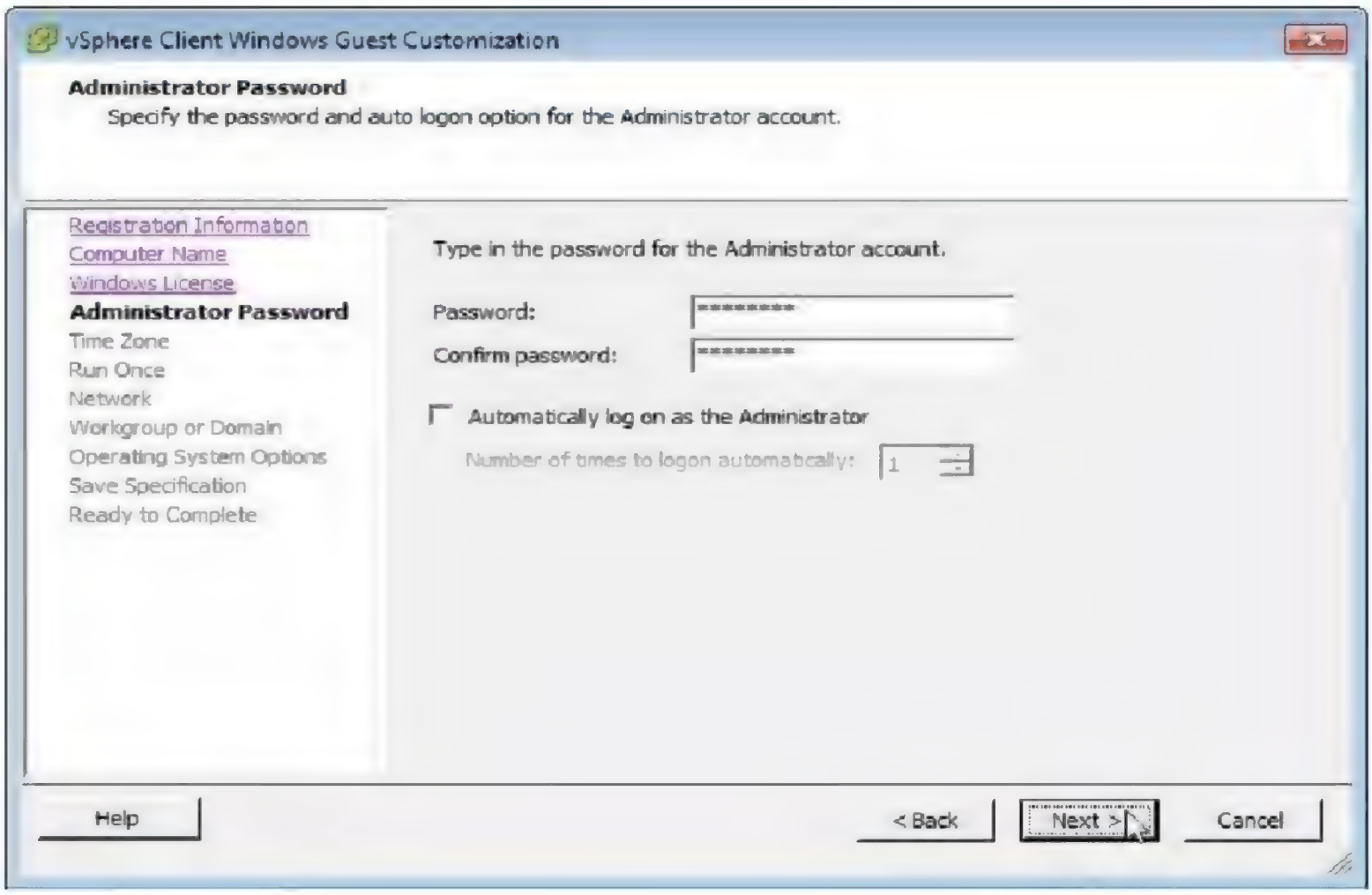
7. Enter the owner's name and organization - Next to continue



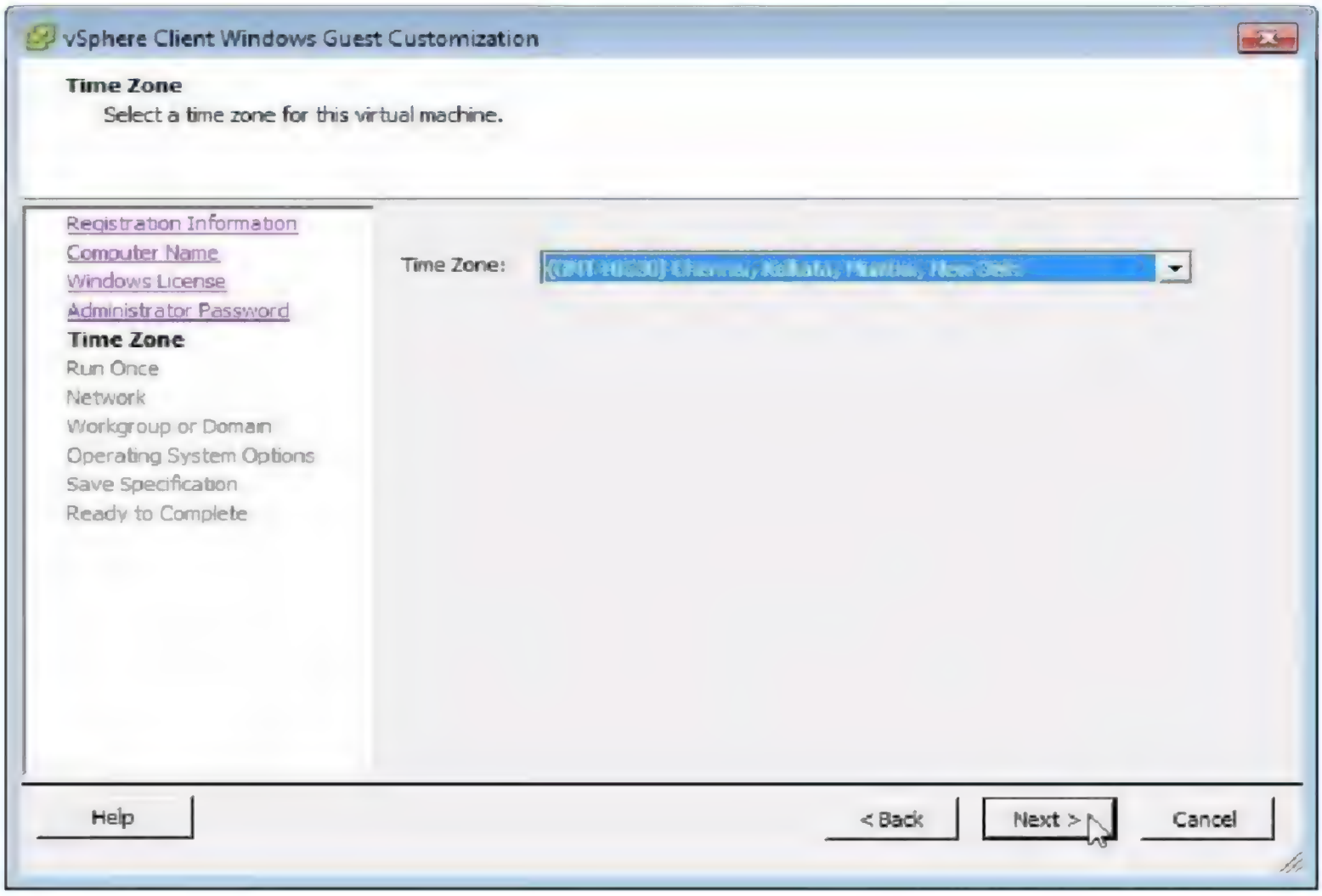
8. Enter a Computer Name or select Use the virtual machine name - Next



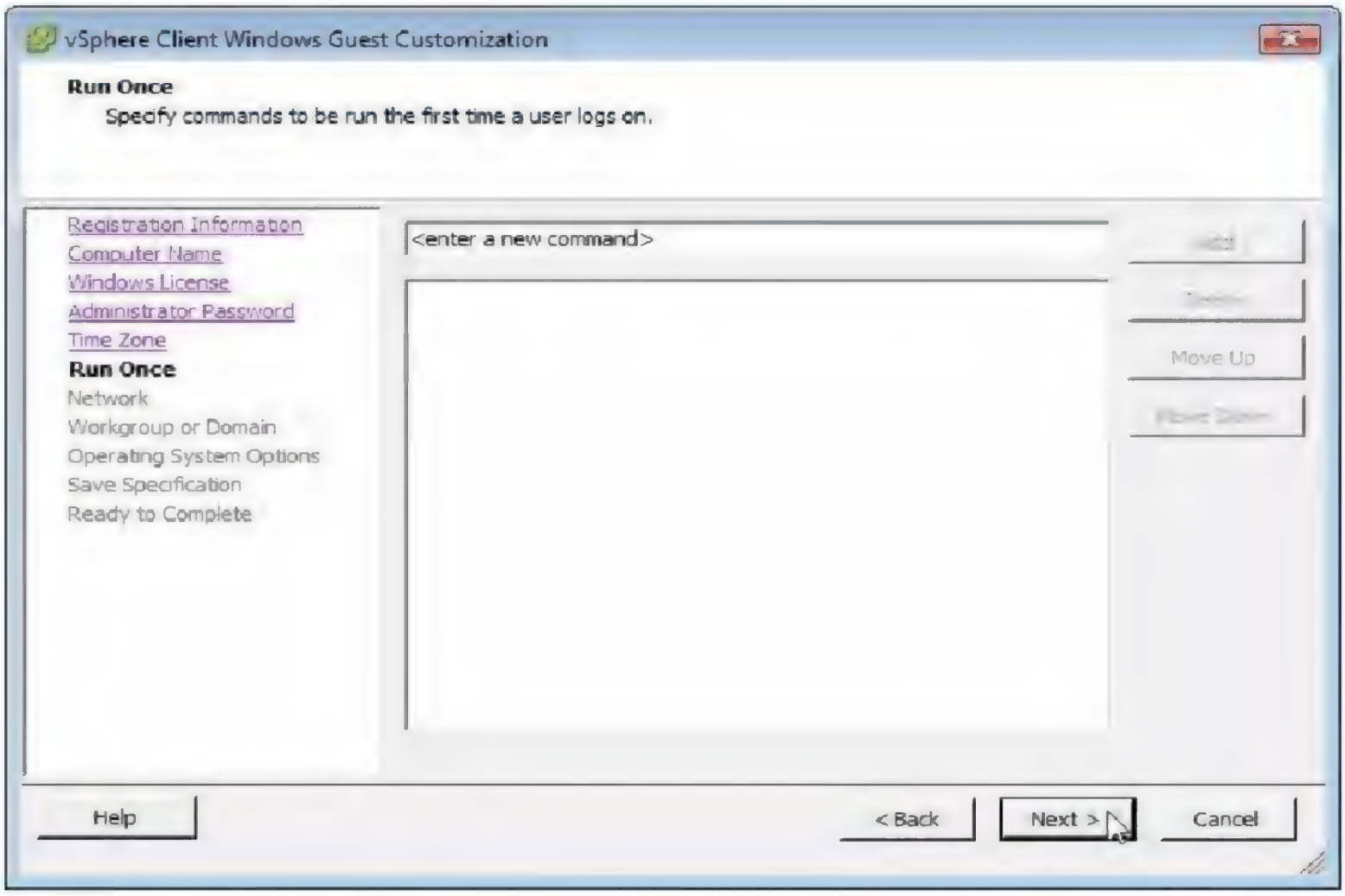
9. Enter a product key any - Next



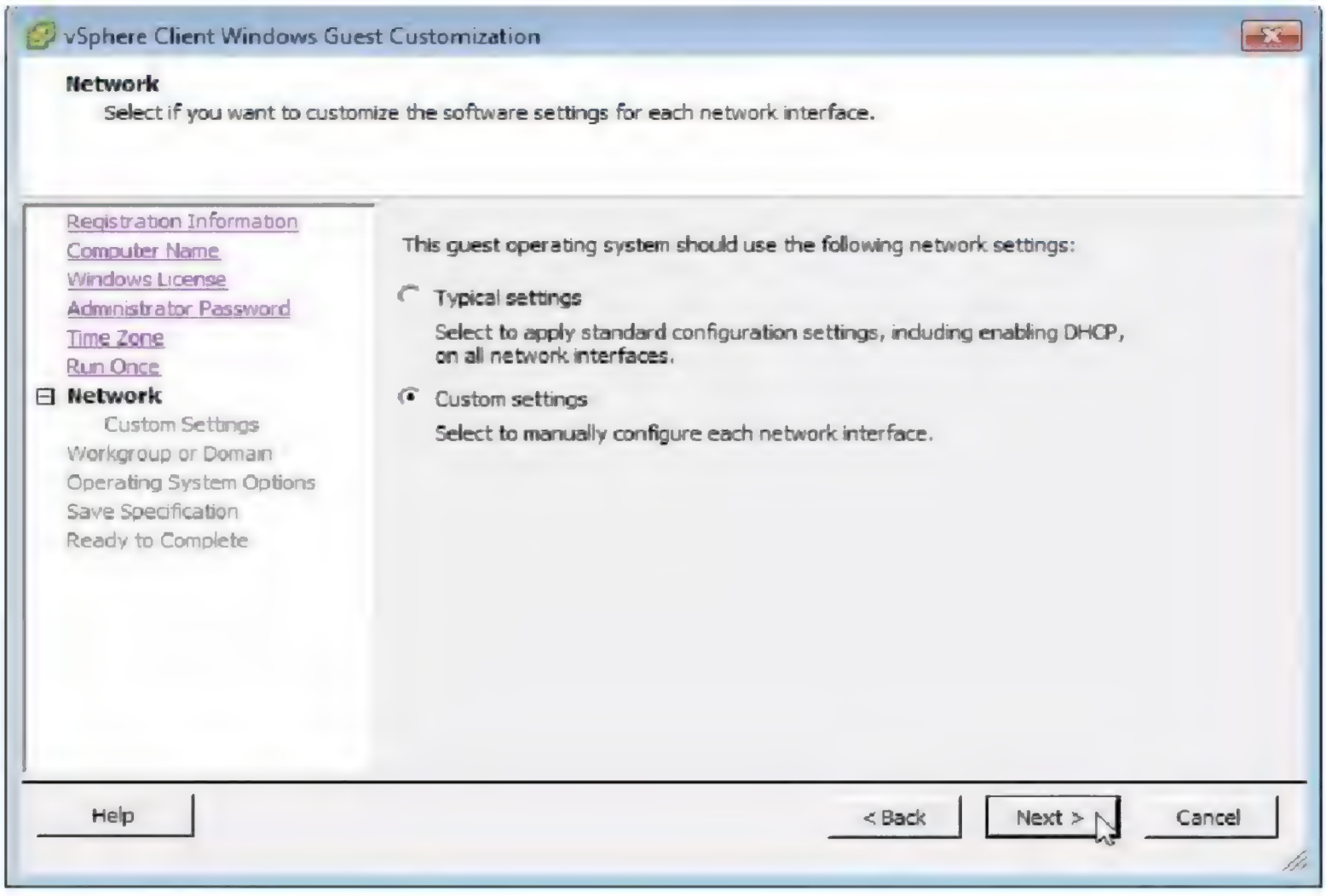
10. Enter password for Administrator account - Next to continue



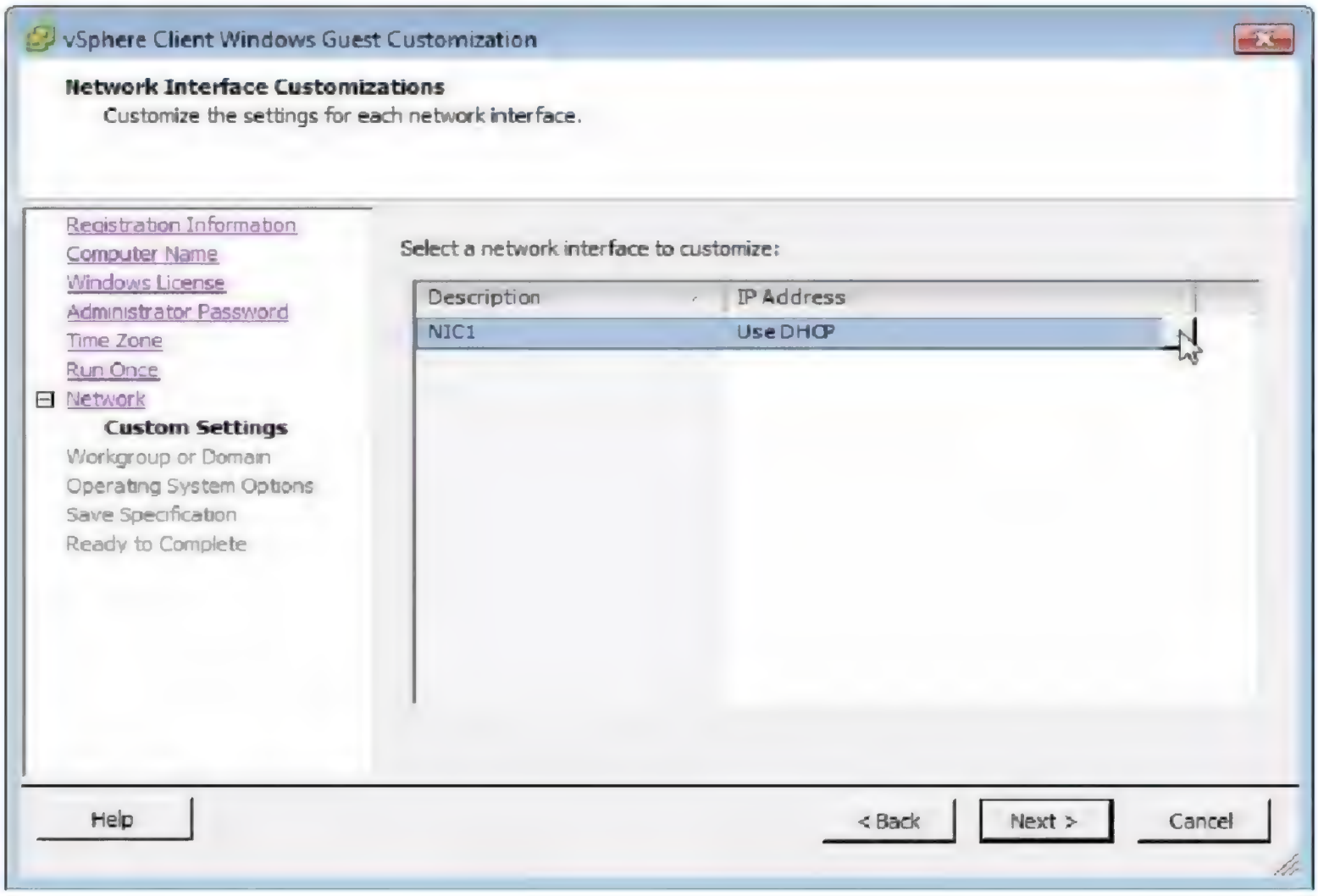
11. Select Time Zone - Next to continue



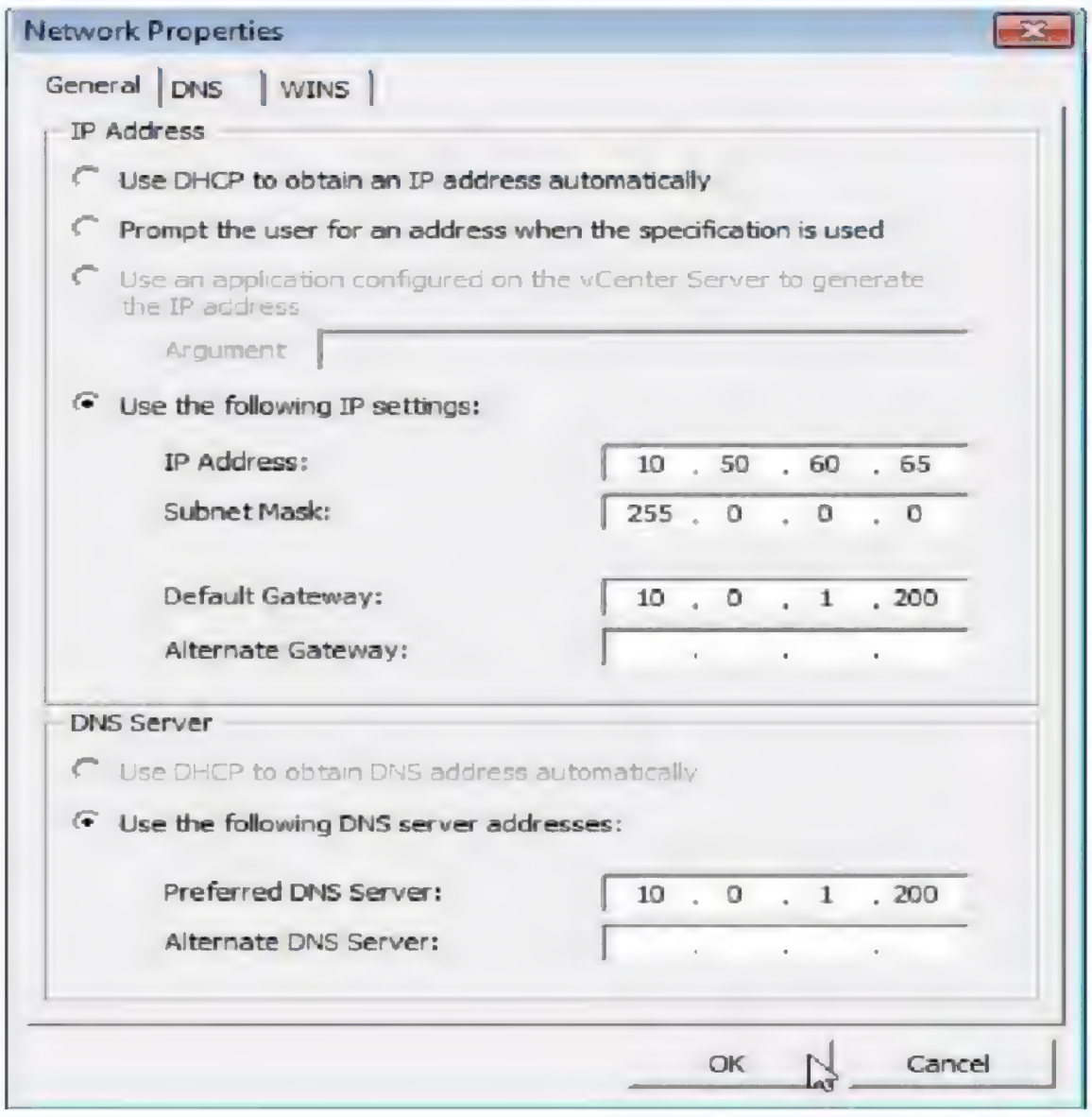
12. Specify command if any, Next to continue



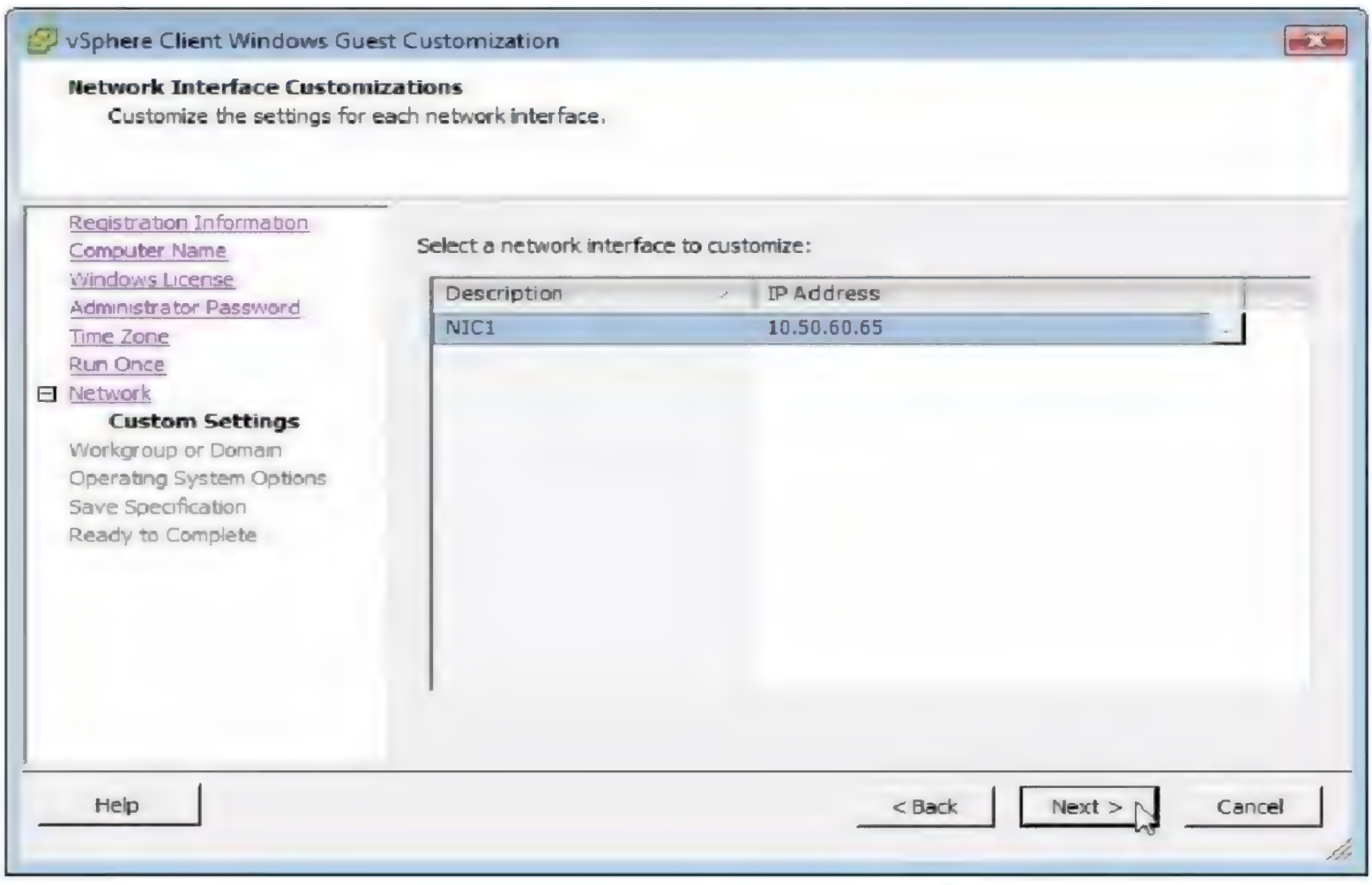
13. Select Typical/Custom settings as desired - Next to continue



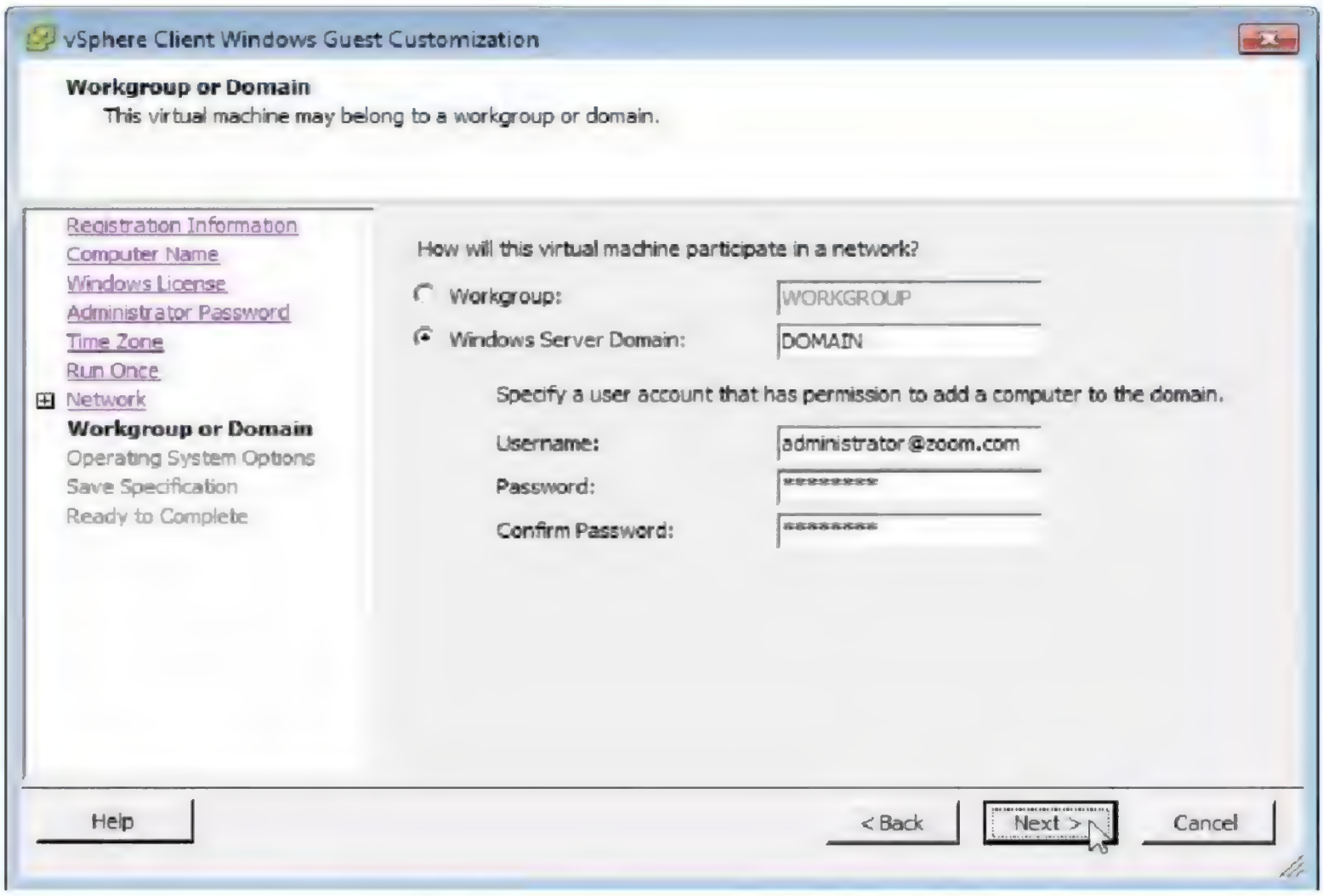
14. Select the NIC to customize



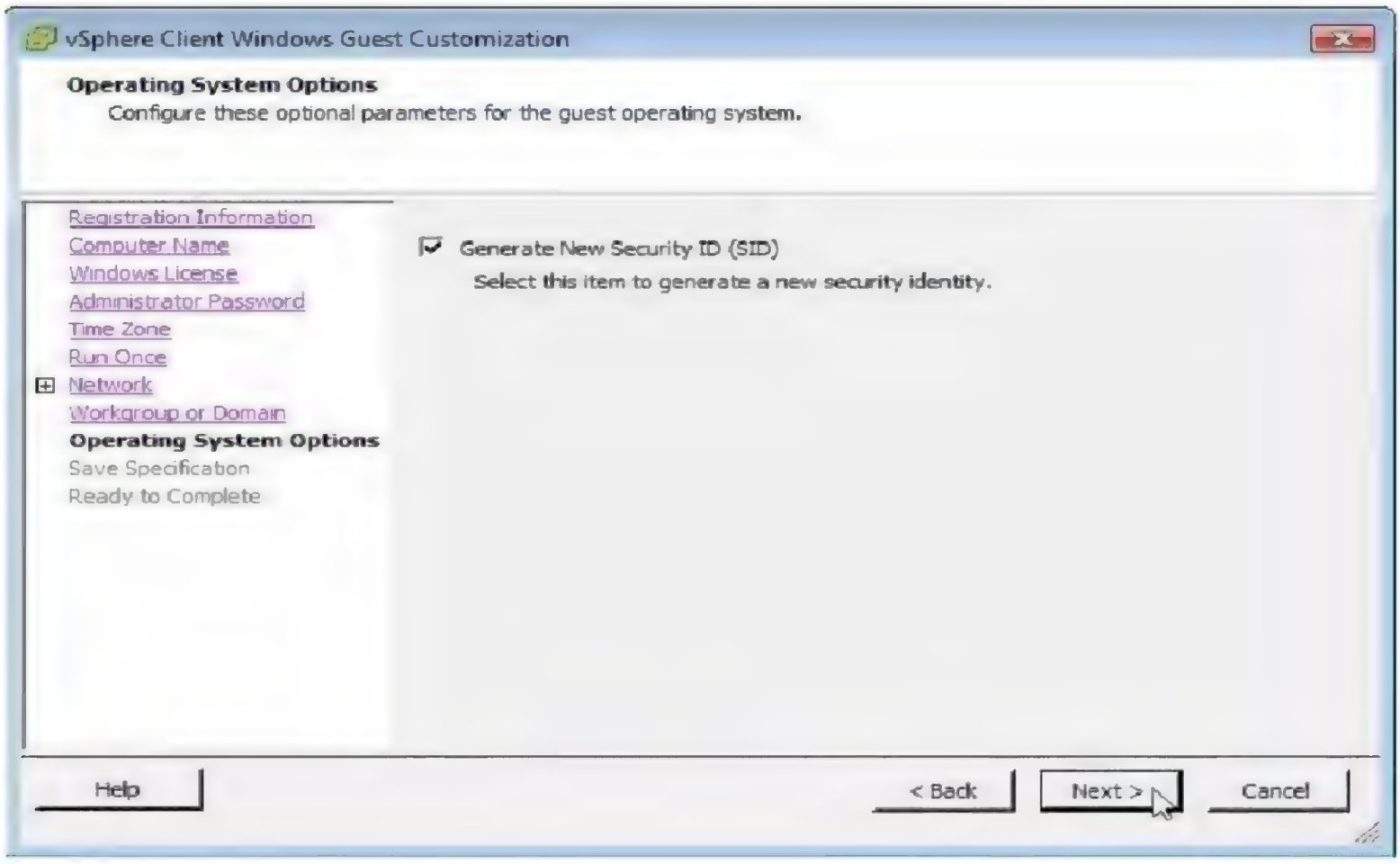
15. Enter the IP, Subnet, Default Gateway & DNS server address - OK



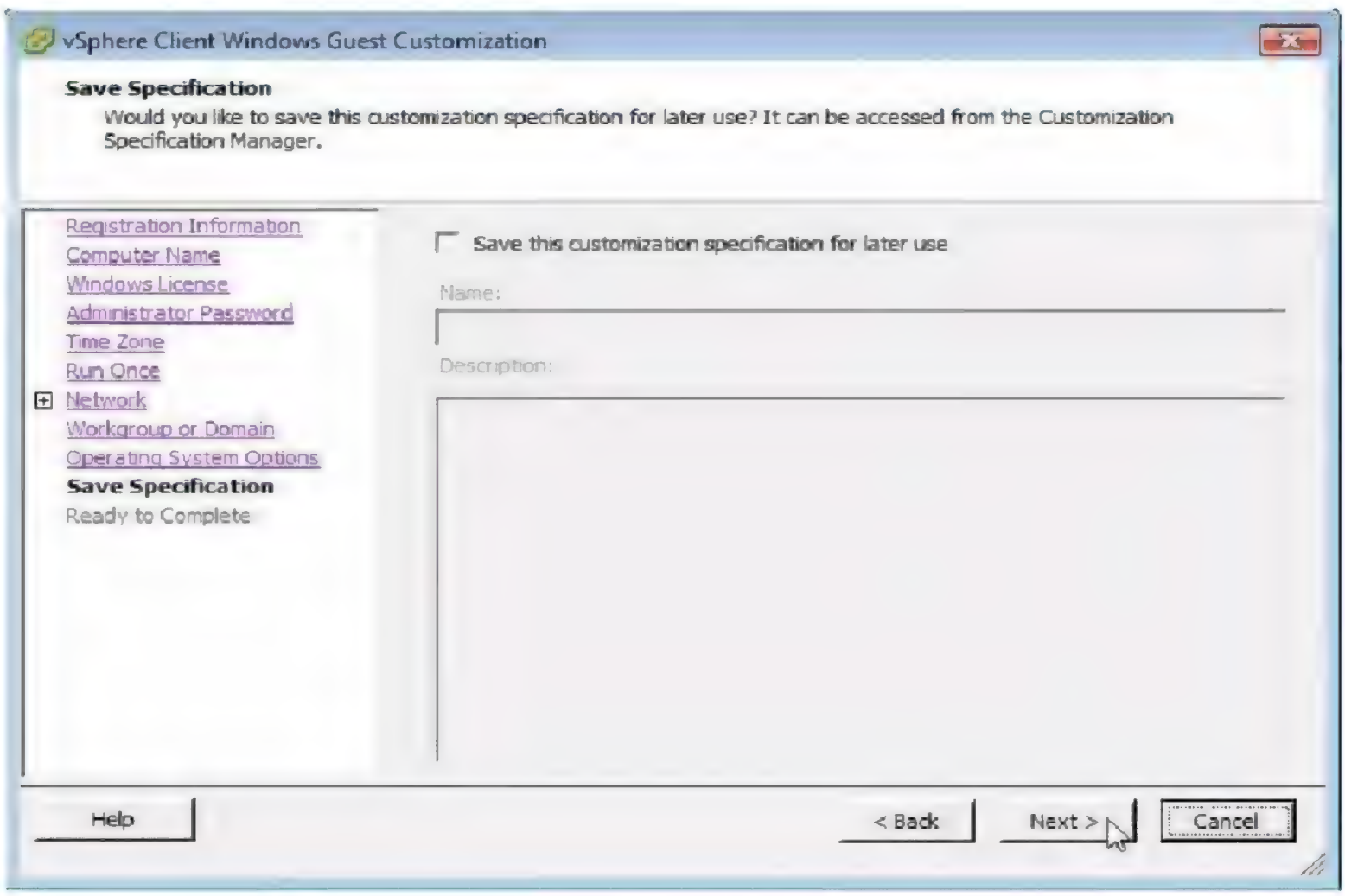
16. Next to continue



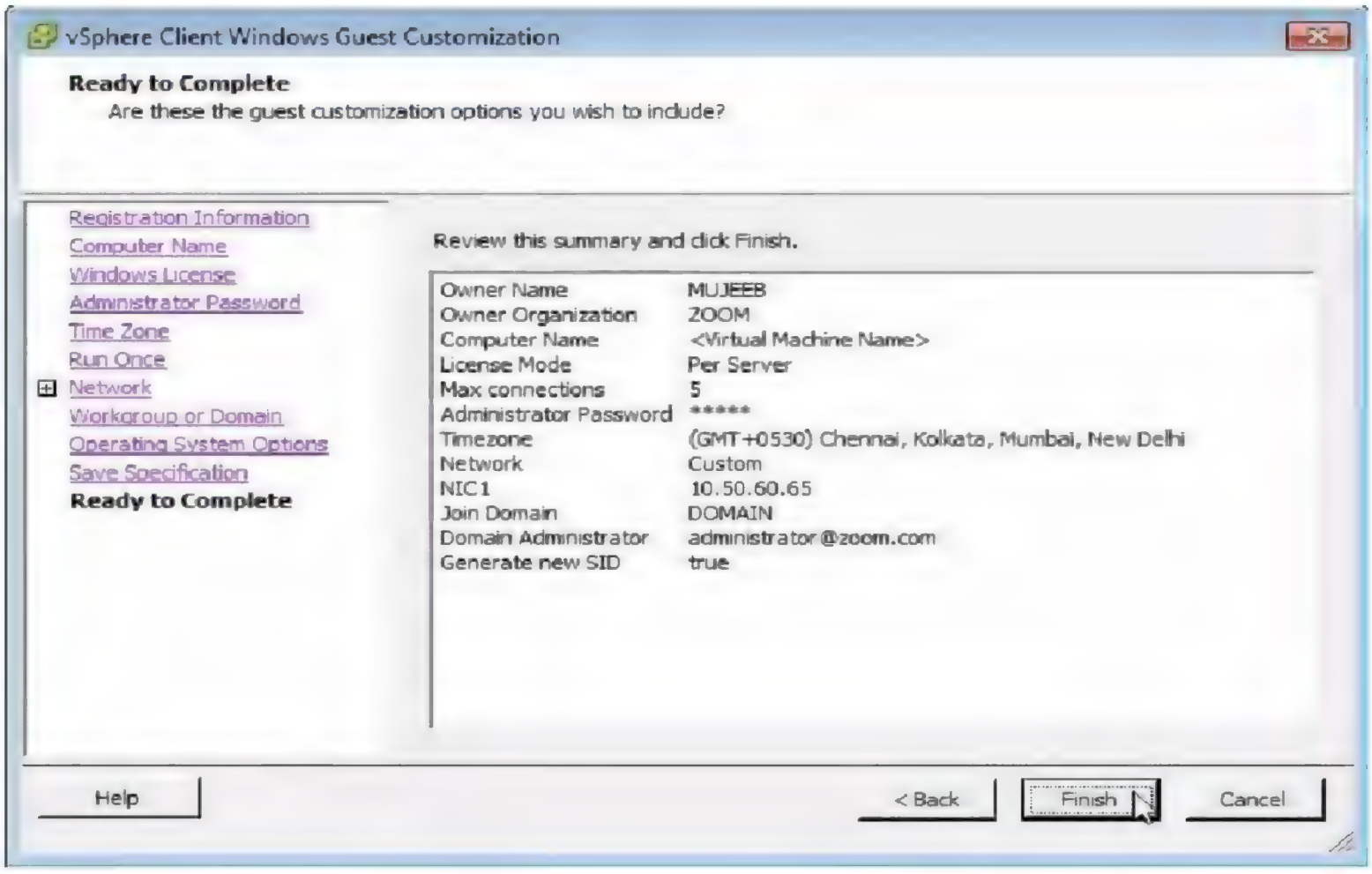
17. Select Workgroup/Domain, if Domain is desired enter the credentials to add to the domain - Next



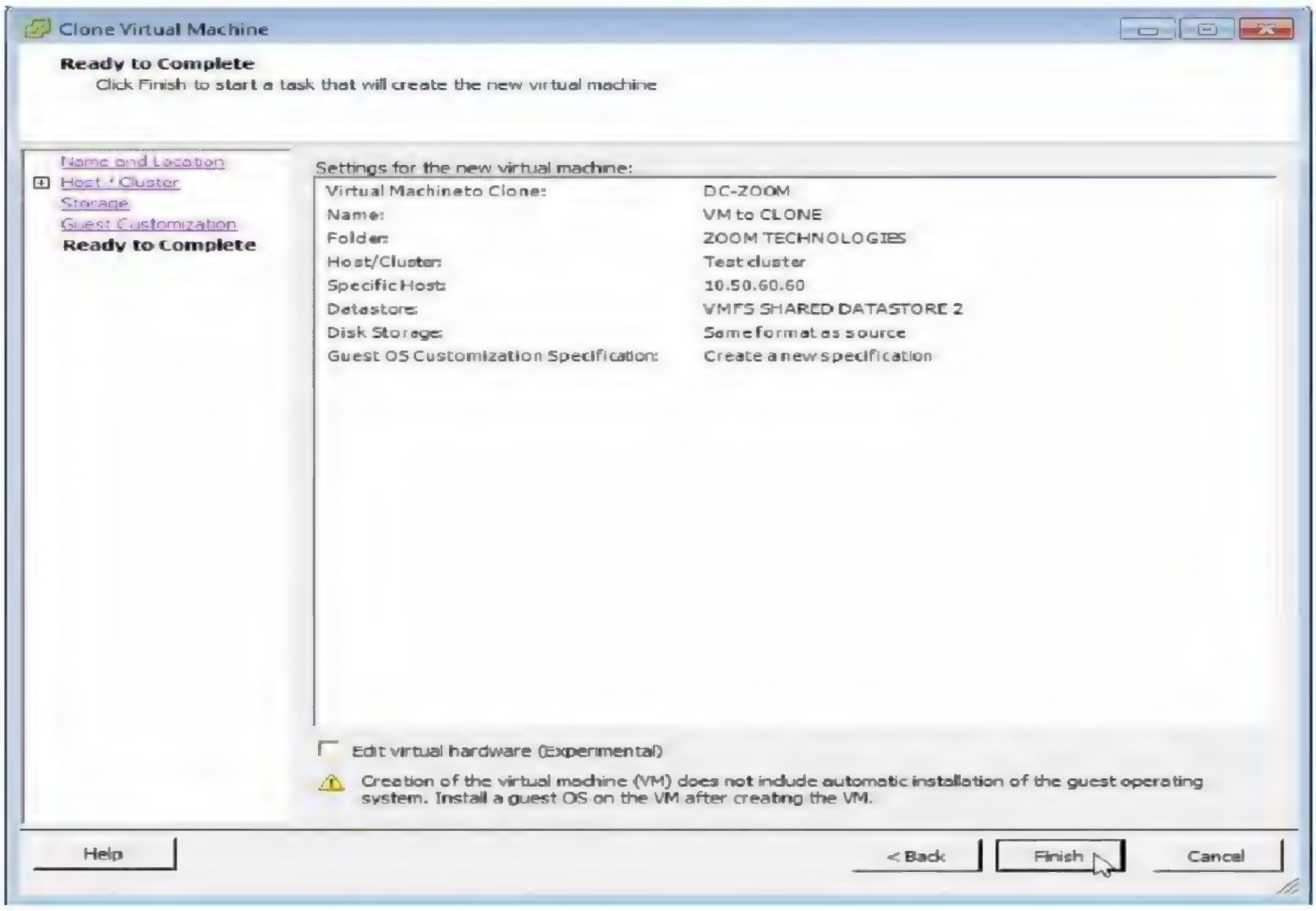
18. Generate New SID, Next to continue



19. If you want to save the specifications for later use you can save or continue without saving - Next

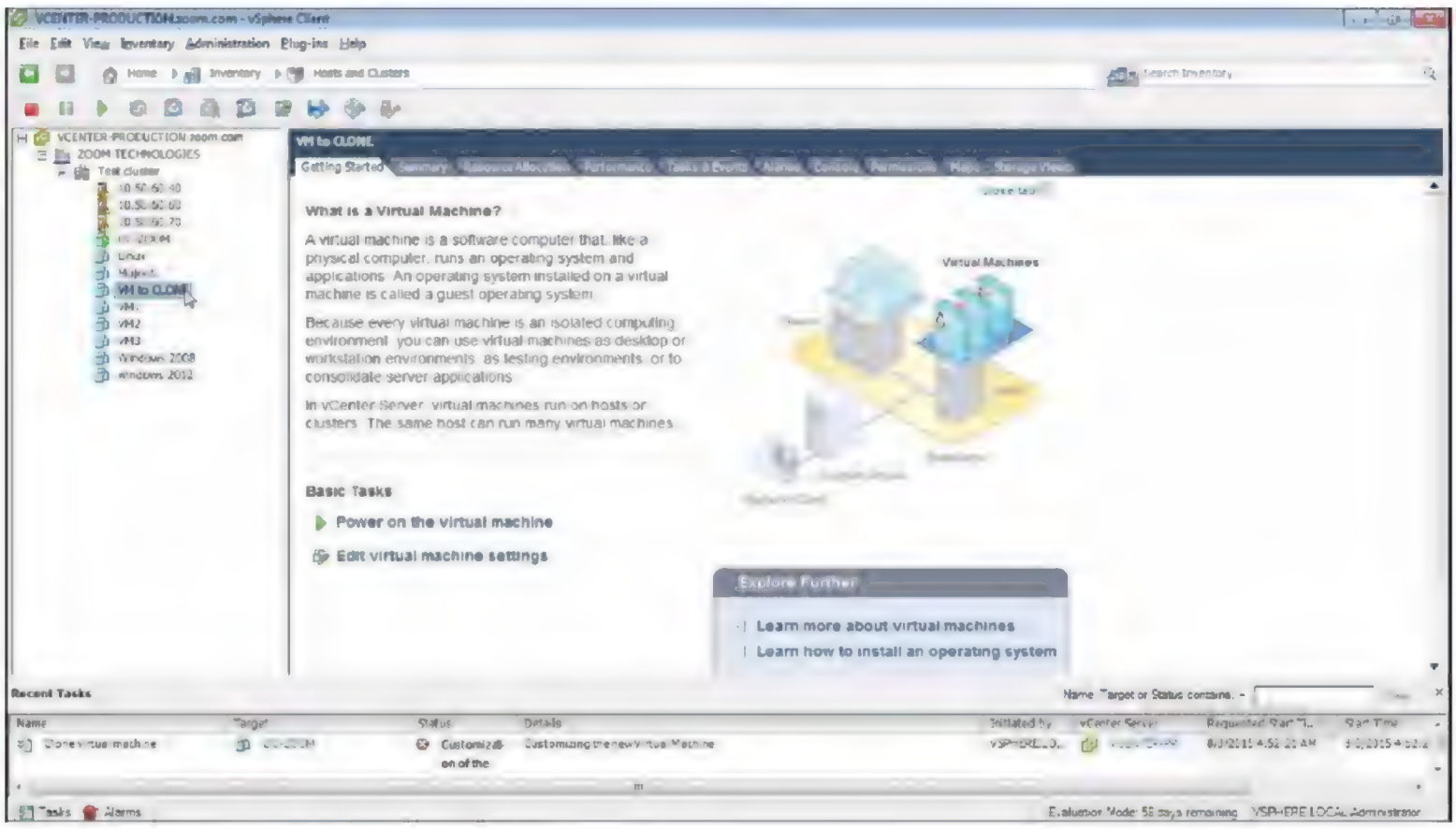


20. Finish to complete the customization



21. Finish to complete creation of a clone

Verification:



Observe Clone is created

LAB-14: TEMPLATE OF VM

Objective:

To Create a Template of a Virtual Machine

Prerequisites:

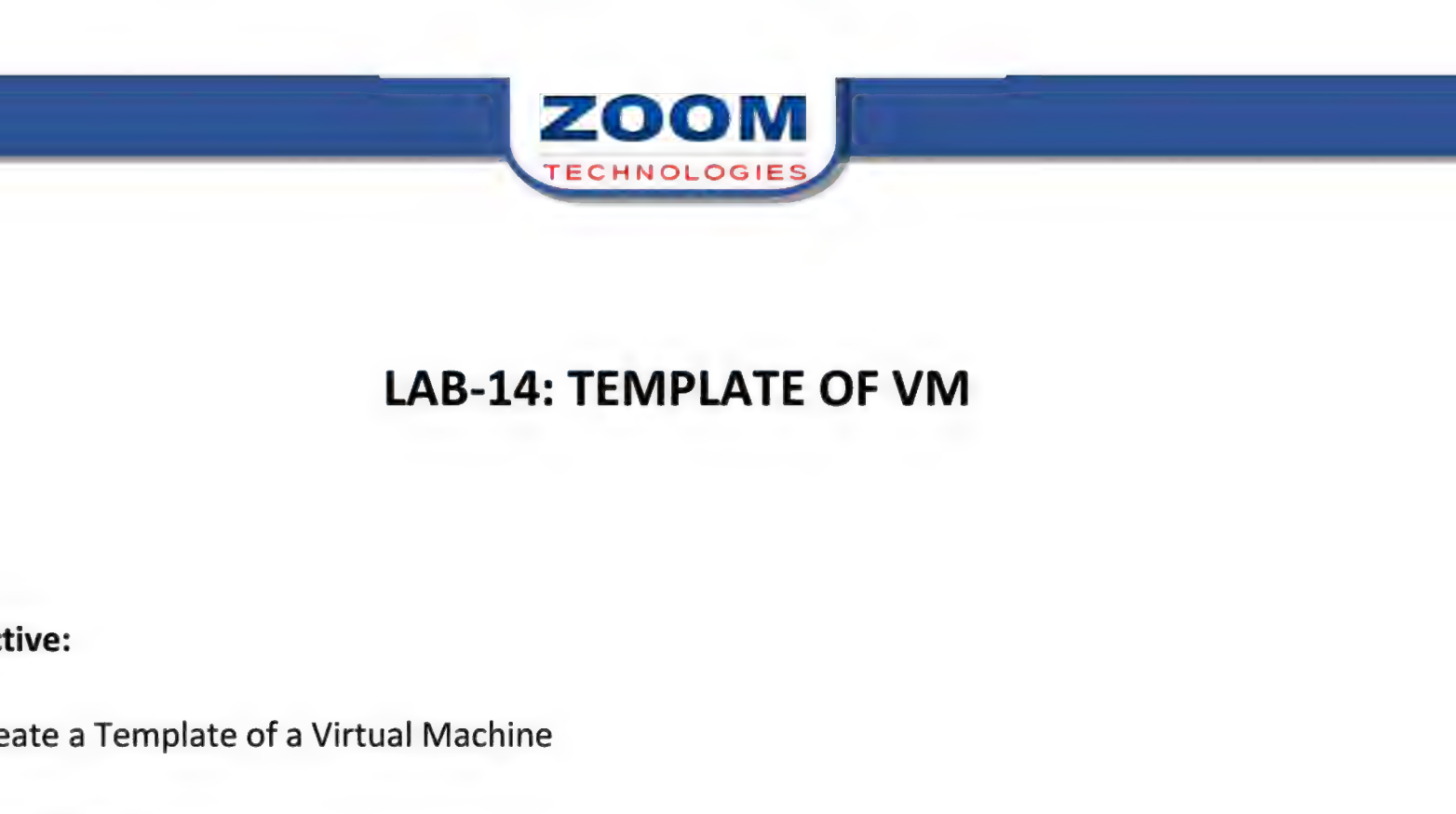
vCenter Server

Tasks:

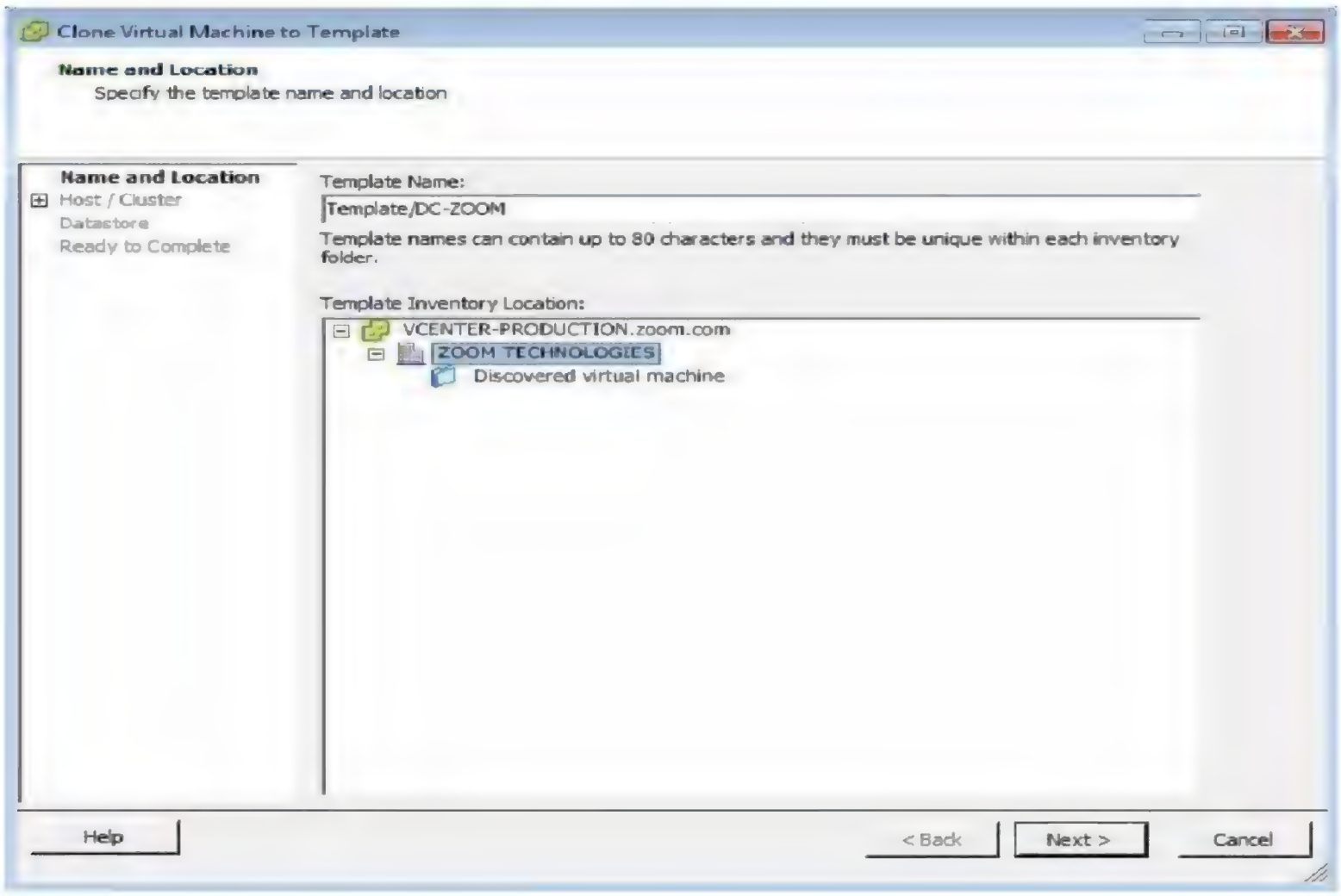
Creating a Template, Deploying a Virtual Machine from the Template

Steps:

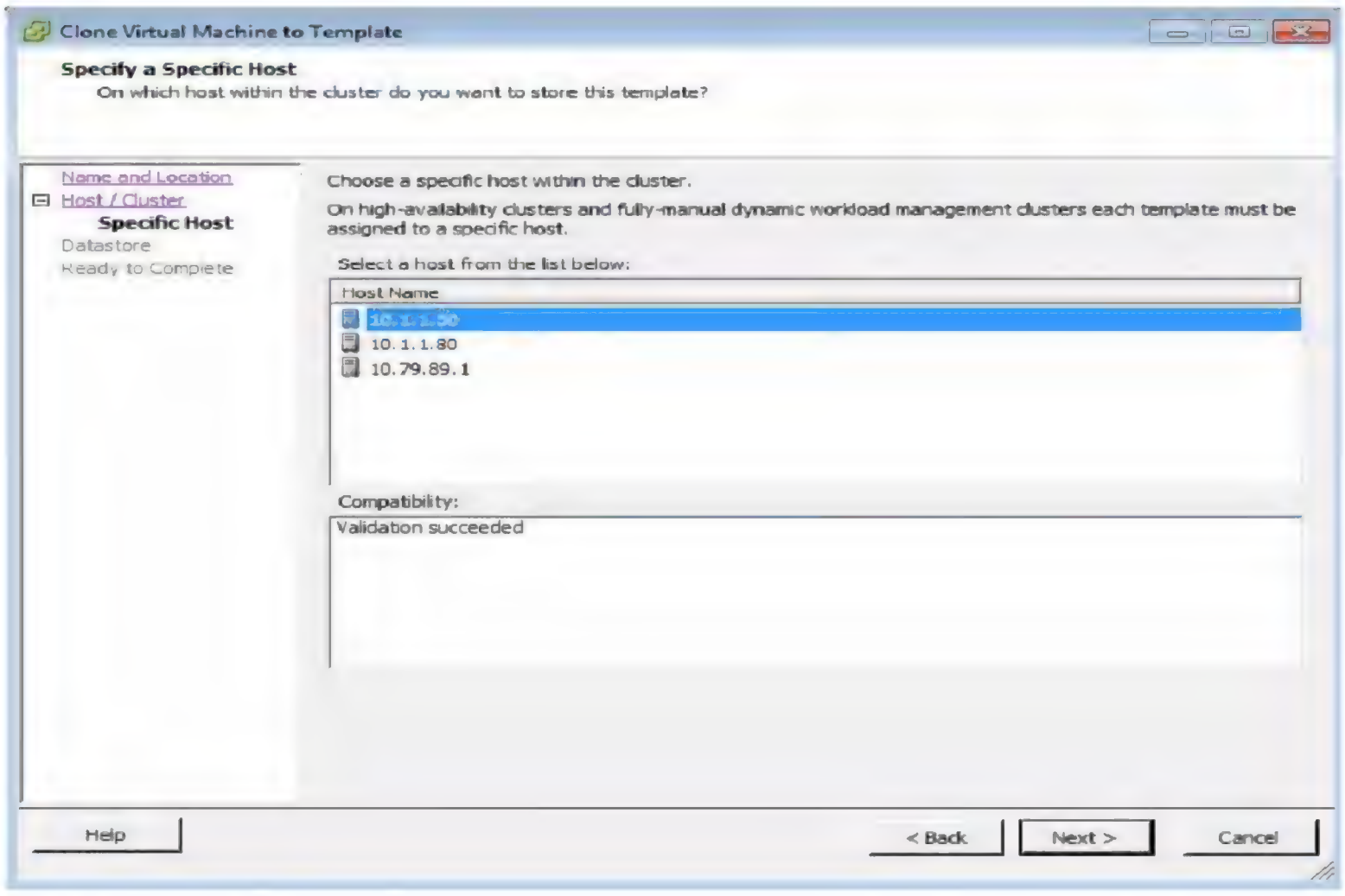
1. Login to vCenter Server



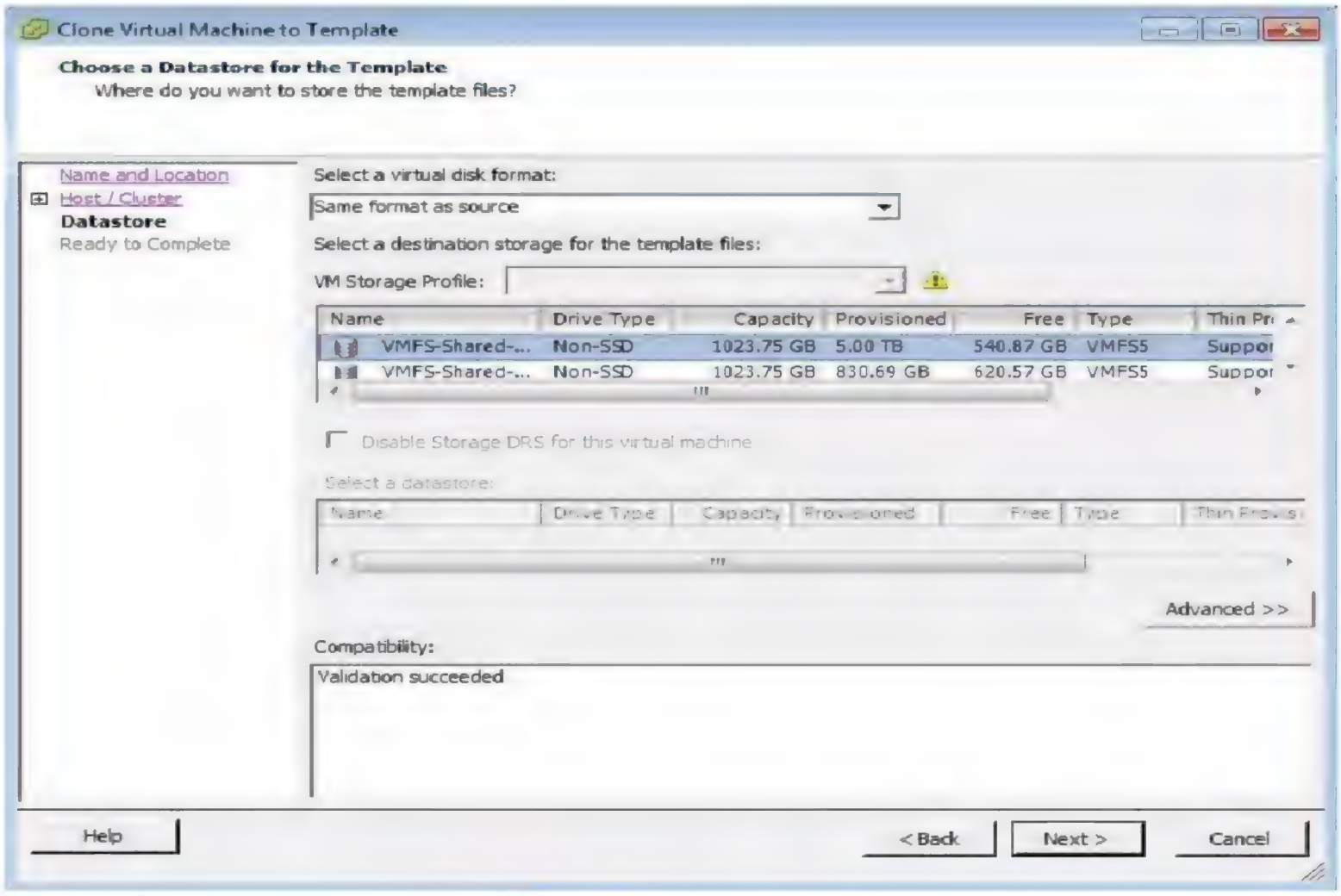
2. Right click VM - Template - Clone to Template



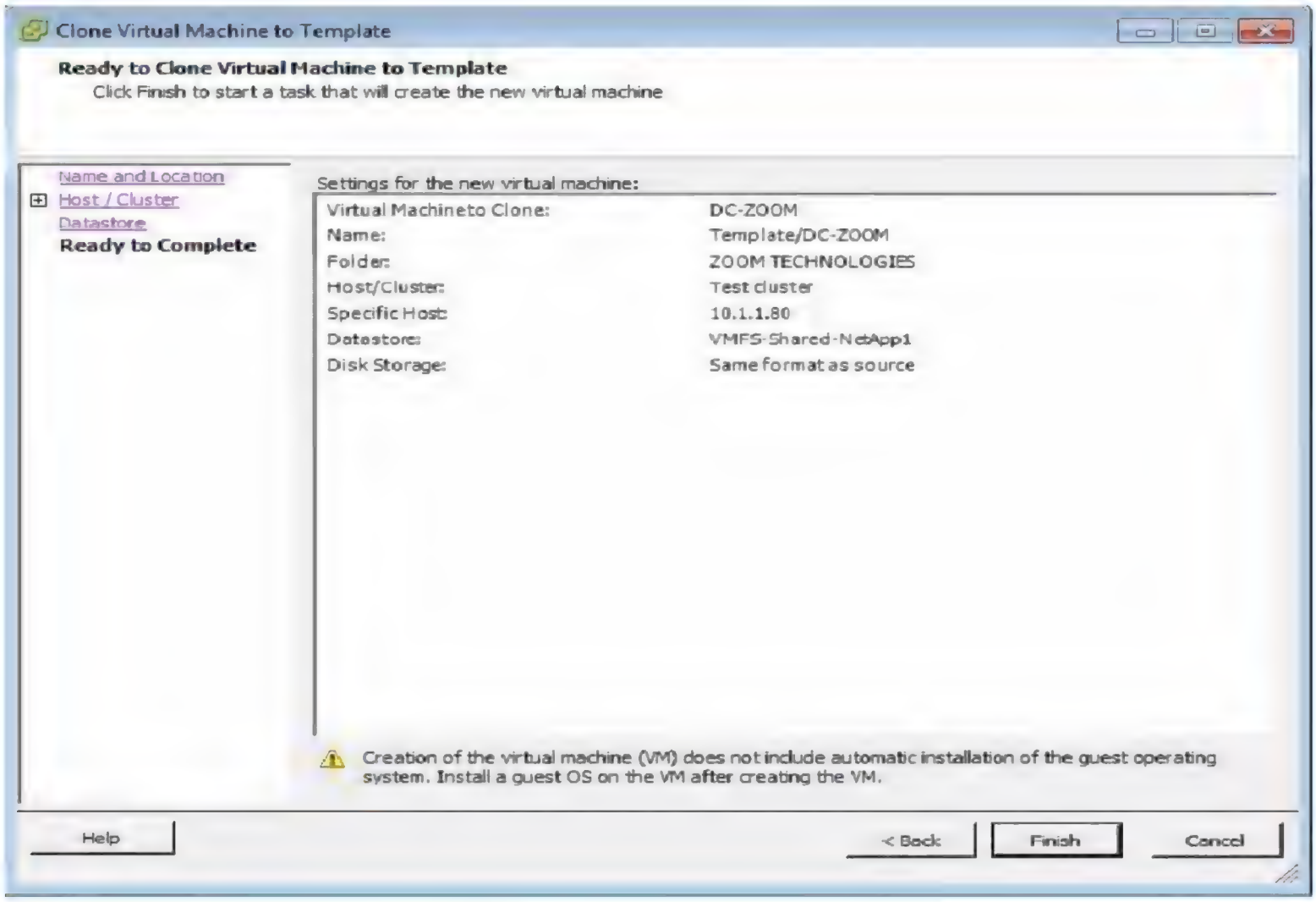
3. Name the Template - Select Datacenter - Next to continue



4. Select the Host - Next to continue



5. Select Datastore to store Template - Next to continue

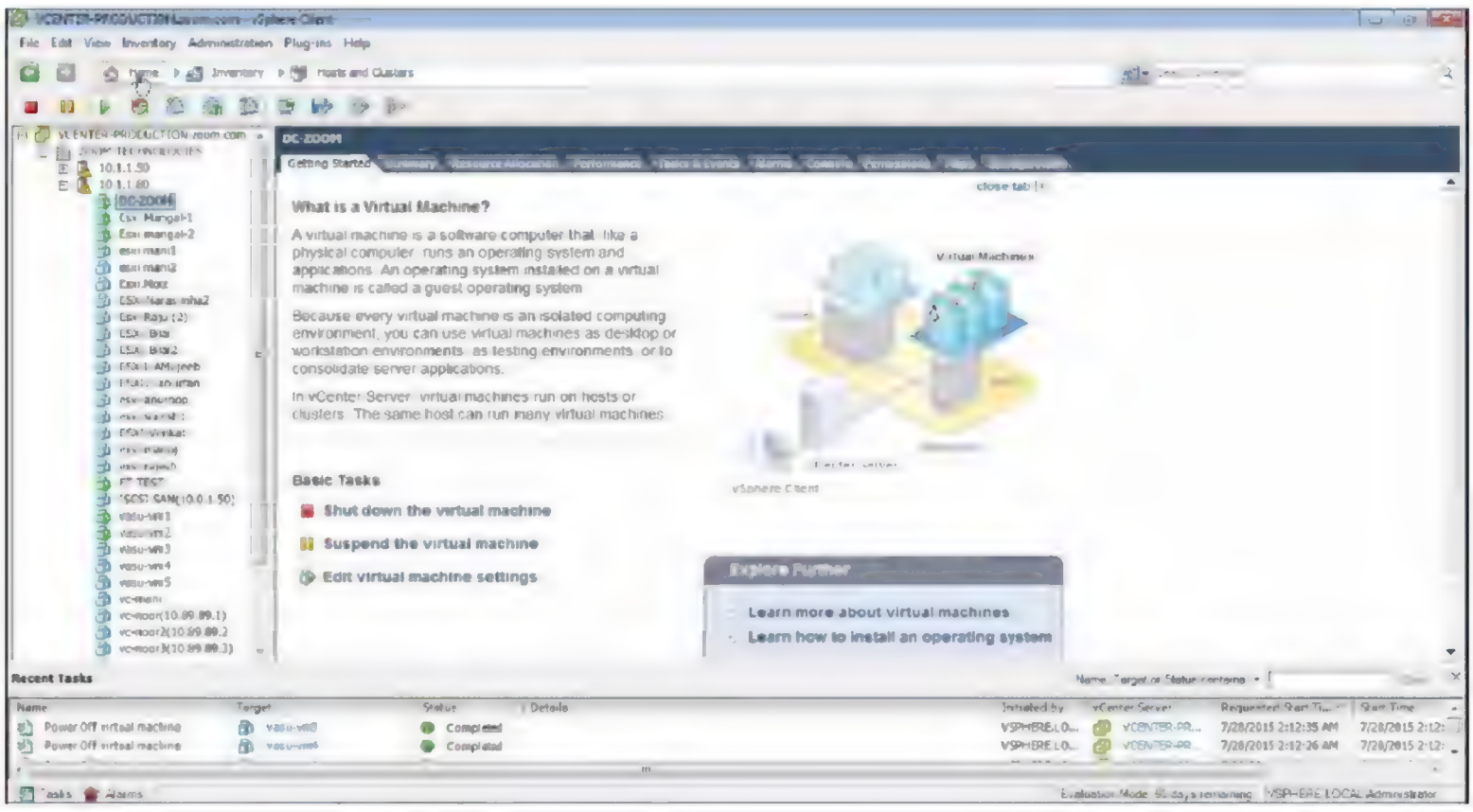


6. Finish to complete the creation of Template

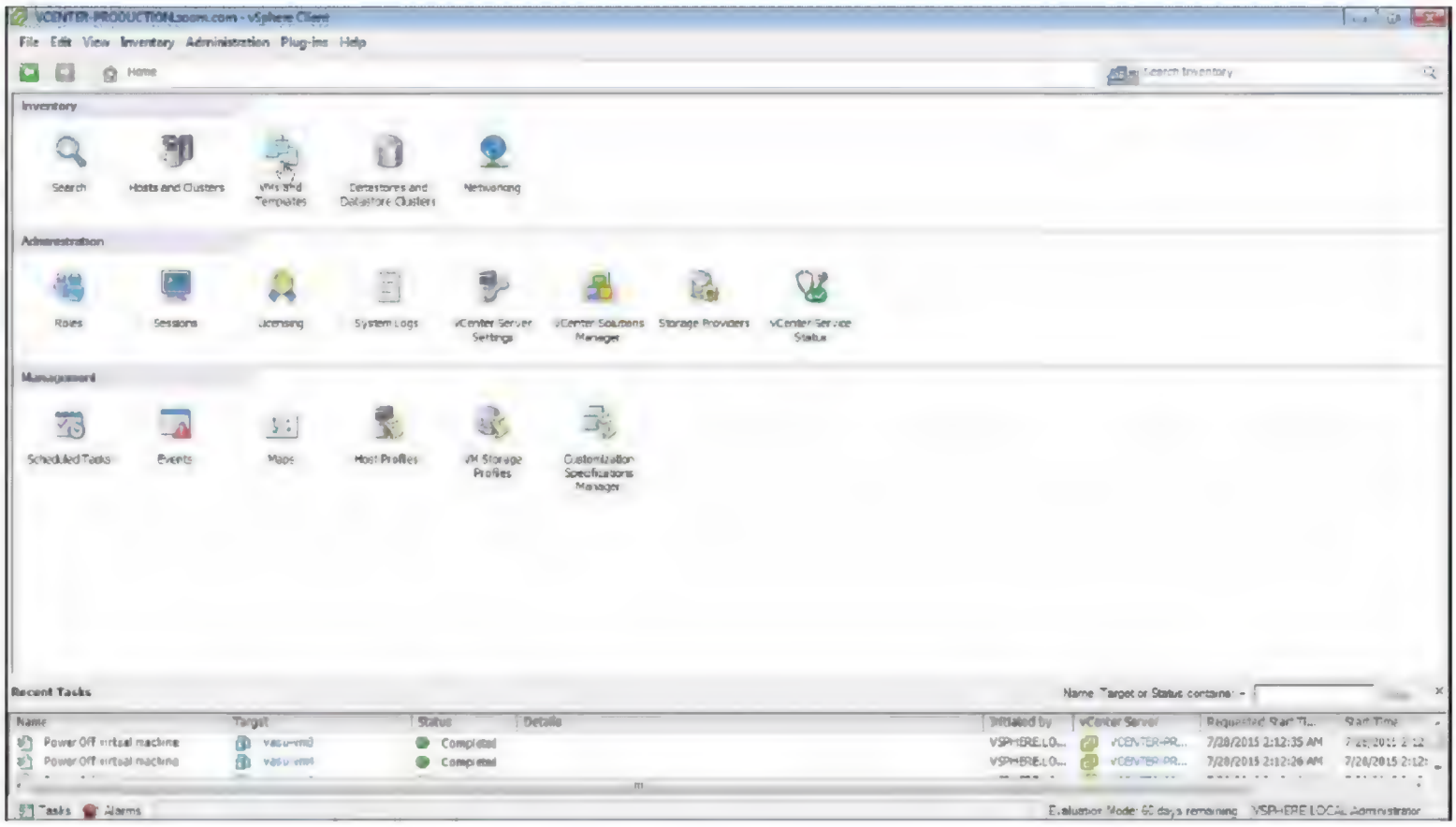
Deploying VM from a Template

Steps:

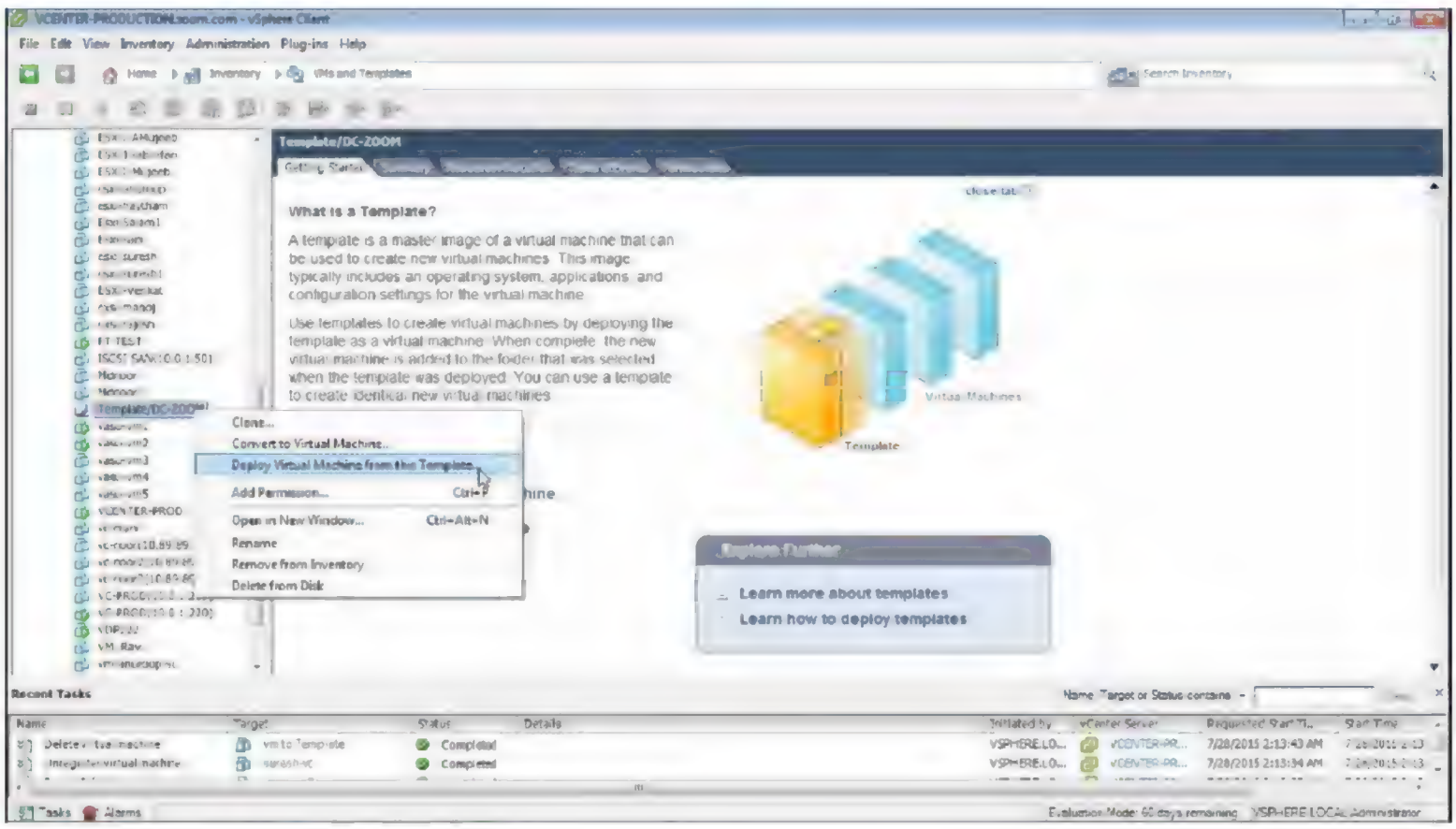
1. Login to vCenter Server



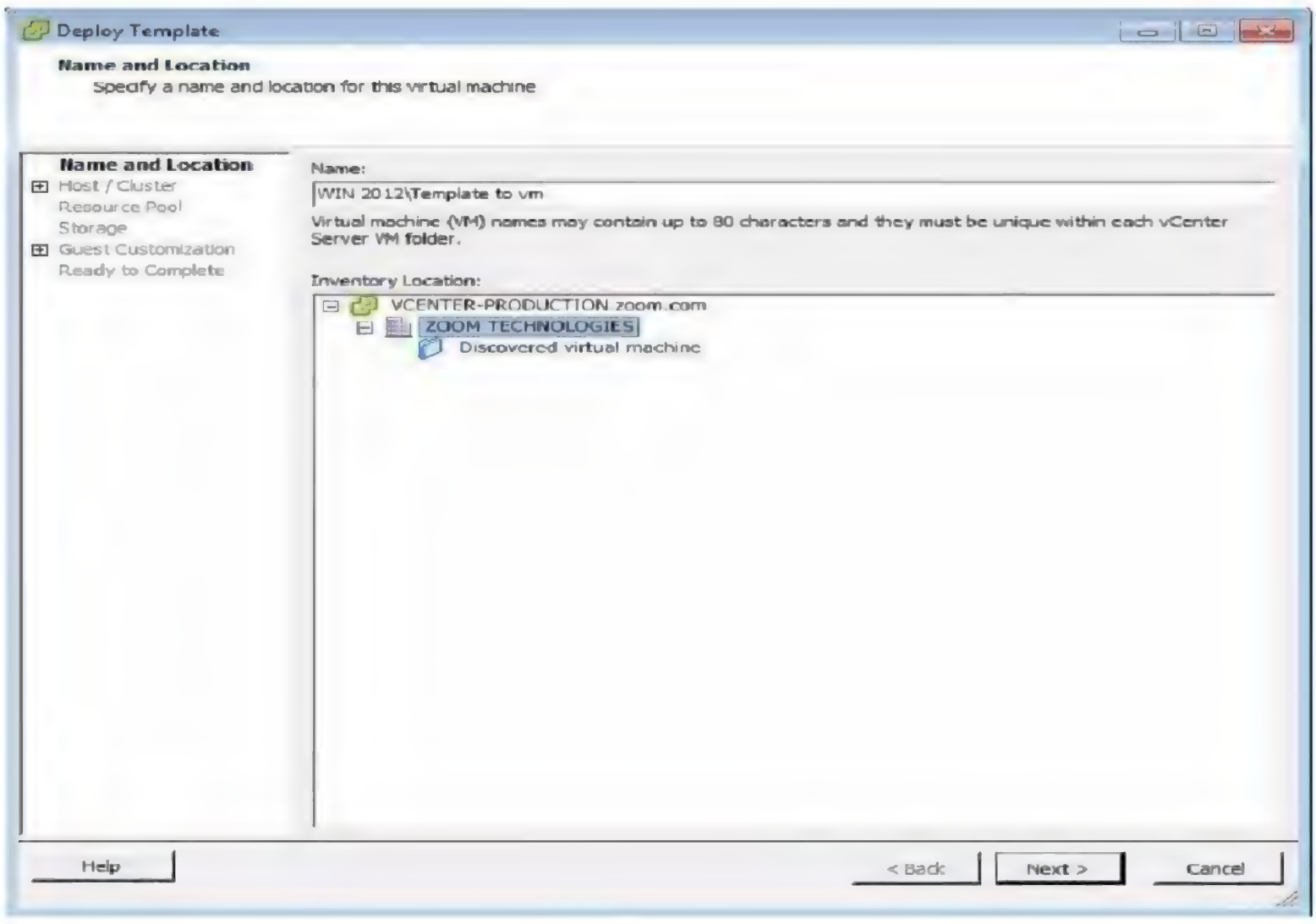
2. Click on Home



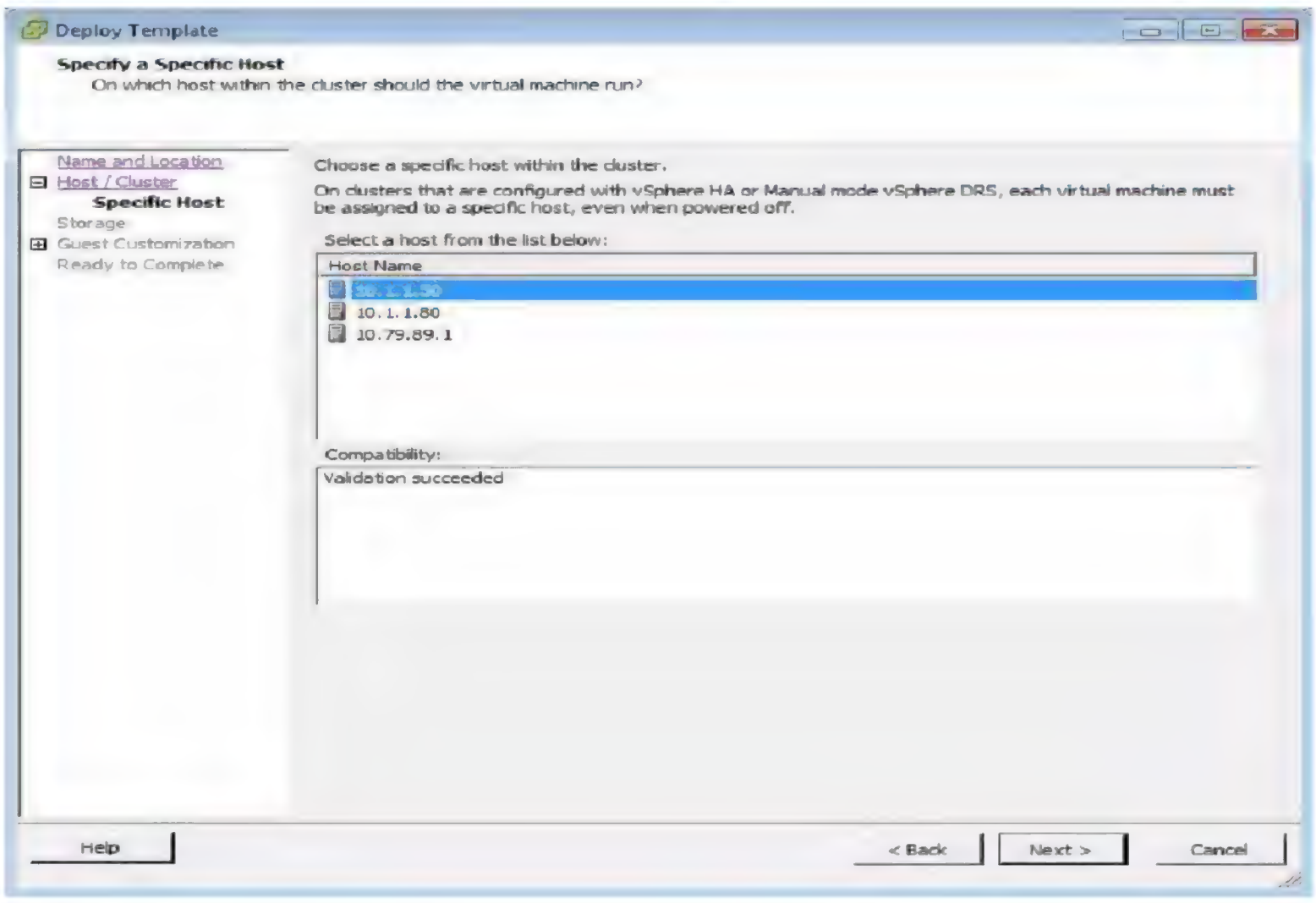
3. Select VMs and Templates



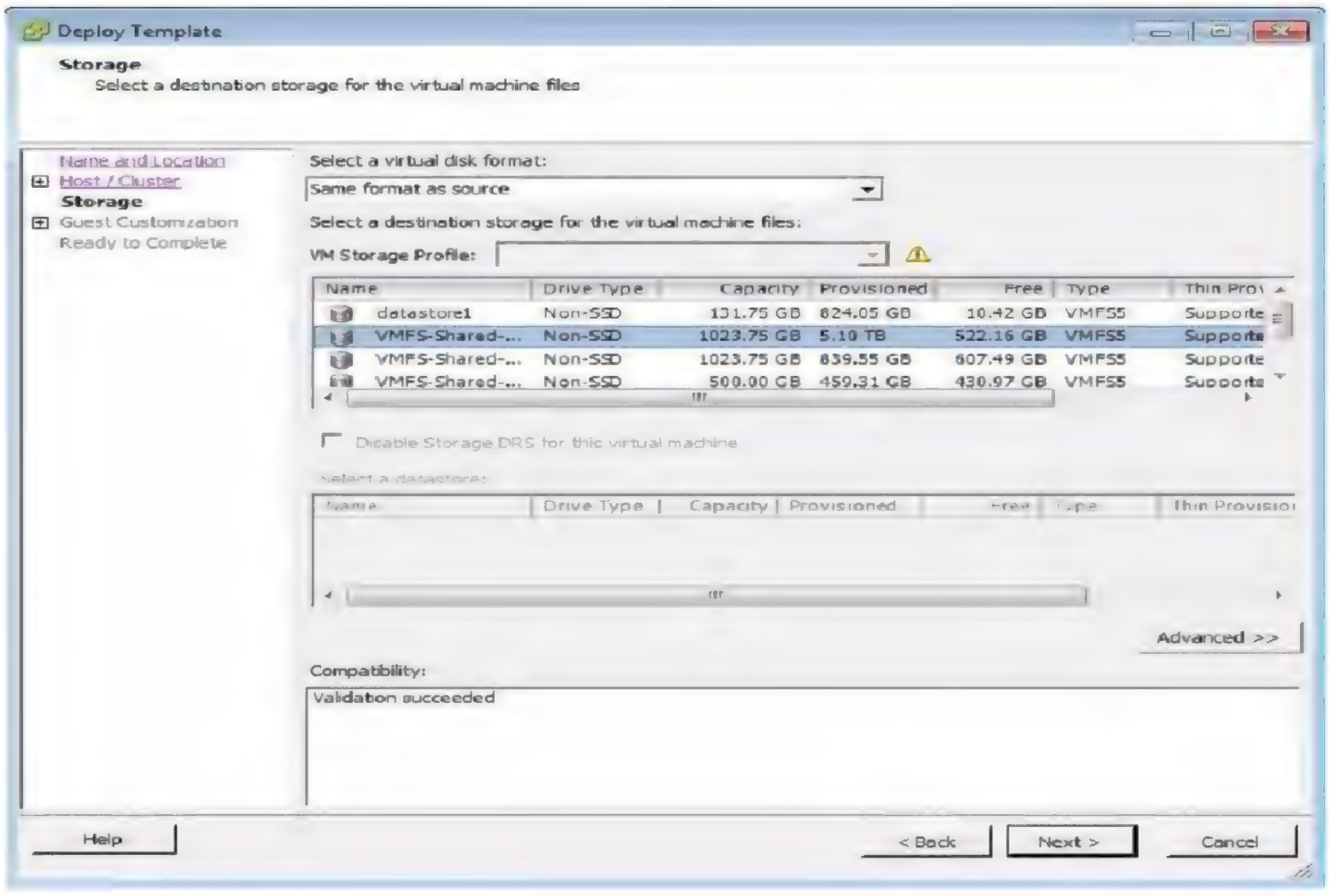
4. Right click on Template - Deploy Virtual Machine from this Template



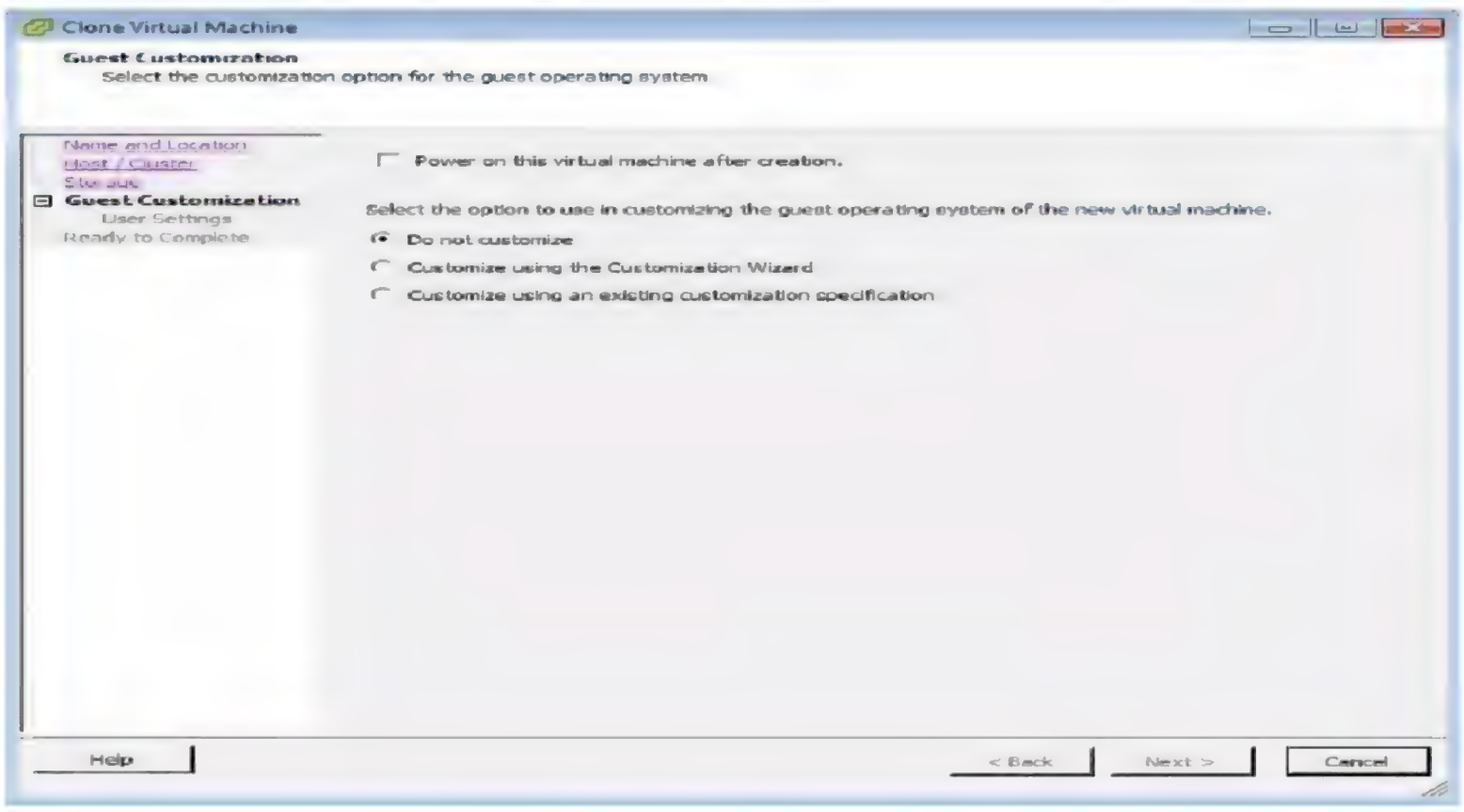
5. Name the Virtual Machine - Select Datacenter - Next



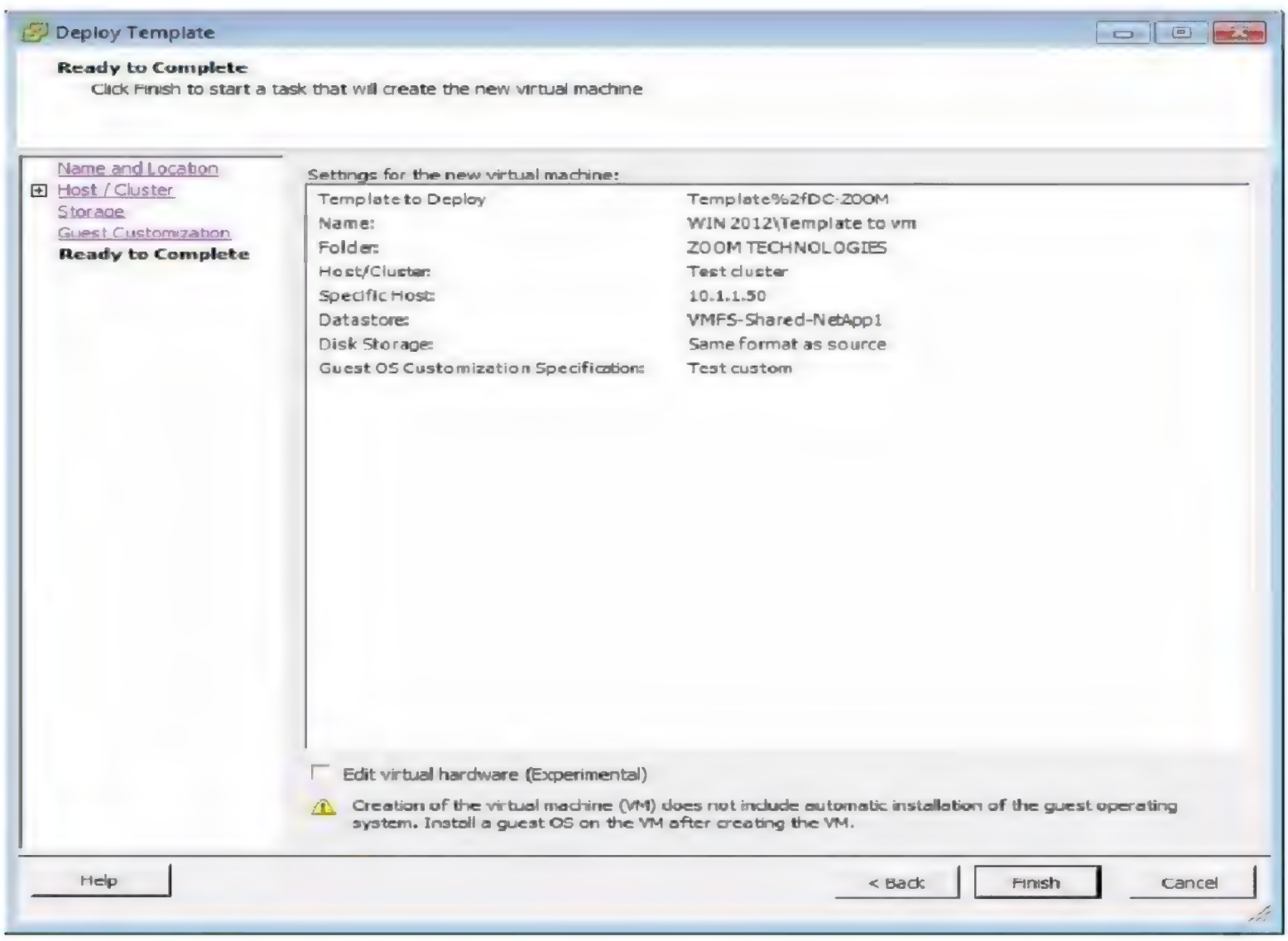
6. Select Host - Next to continue



7. Select Datastore - Next to continue



8. Select the option to use in customizing the guest,Next to continue



9. Finish to complete the creation of VM from Template

LAB-15: vMOTION (MIGRATION OF VM)

Objective:

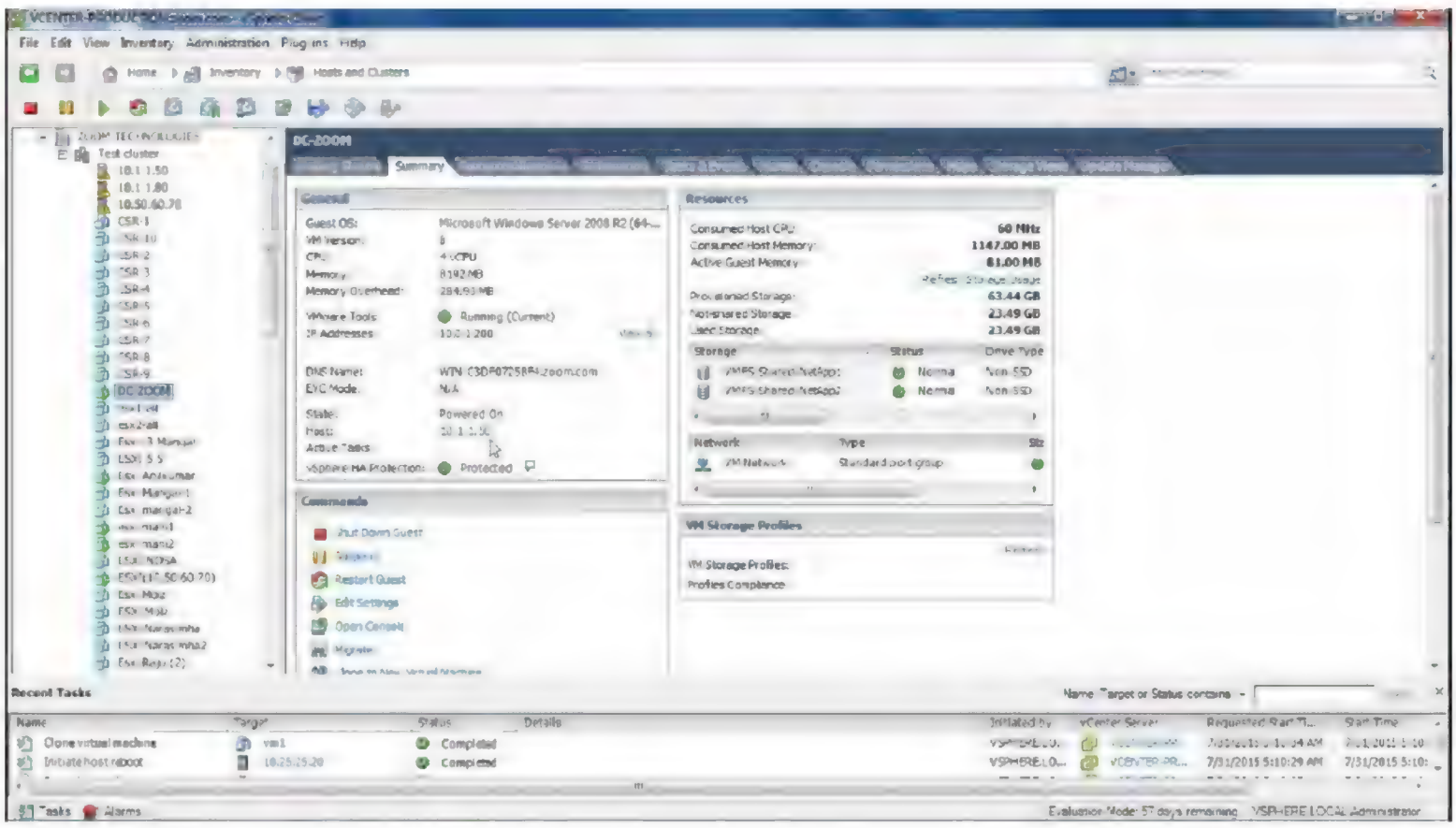
To migrate Virtual Machine from one Host to another

Prerequisites:

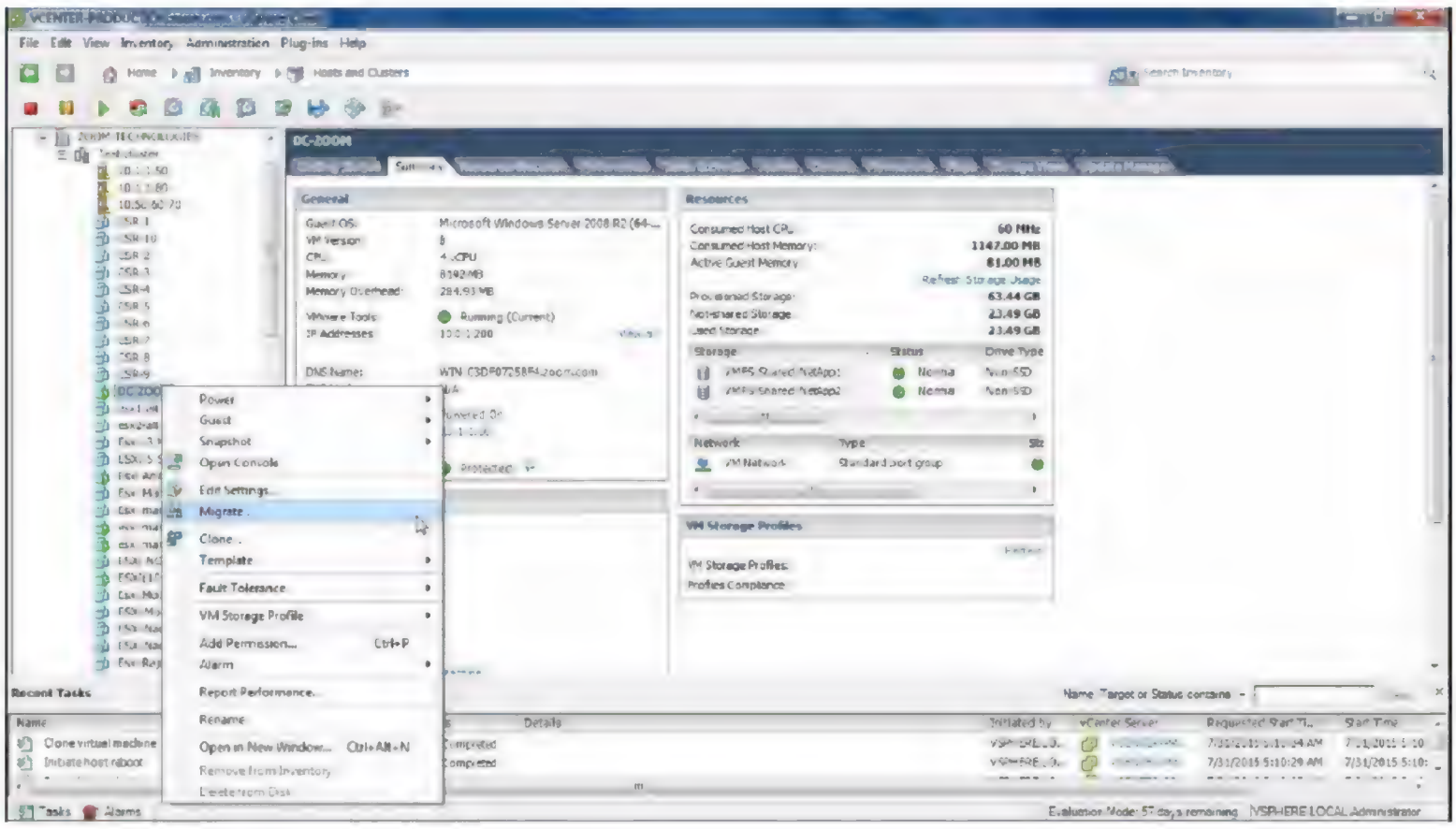
vCenter Server

Steps:

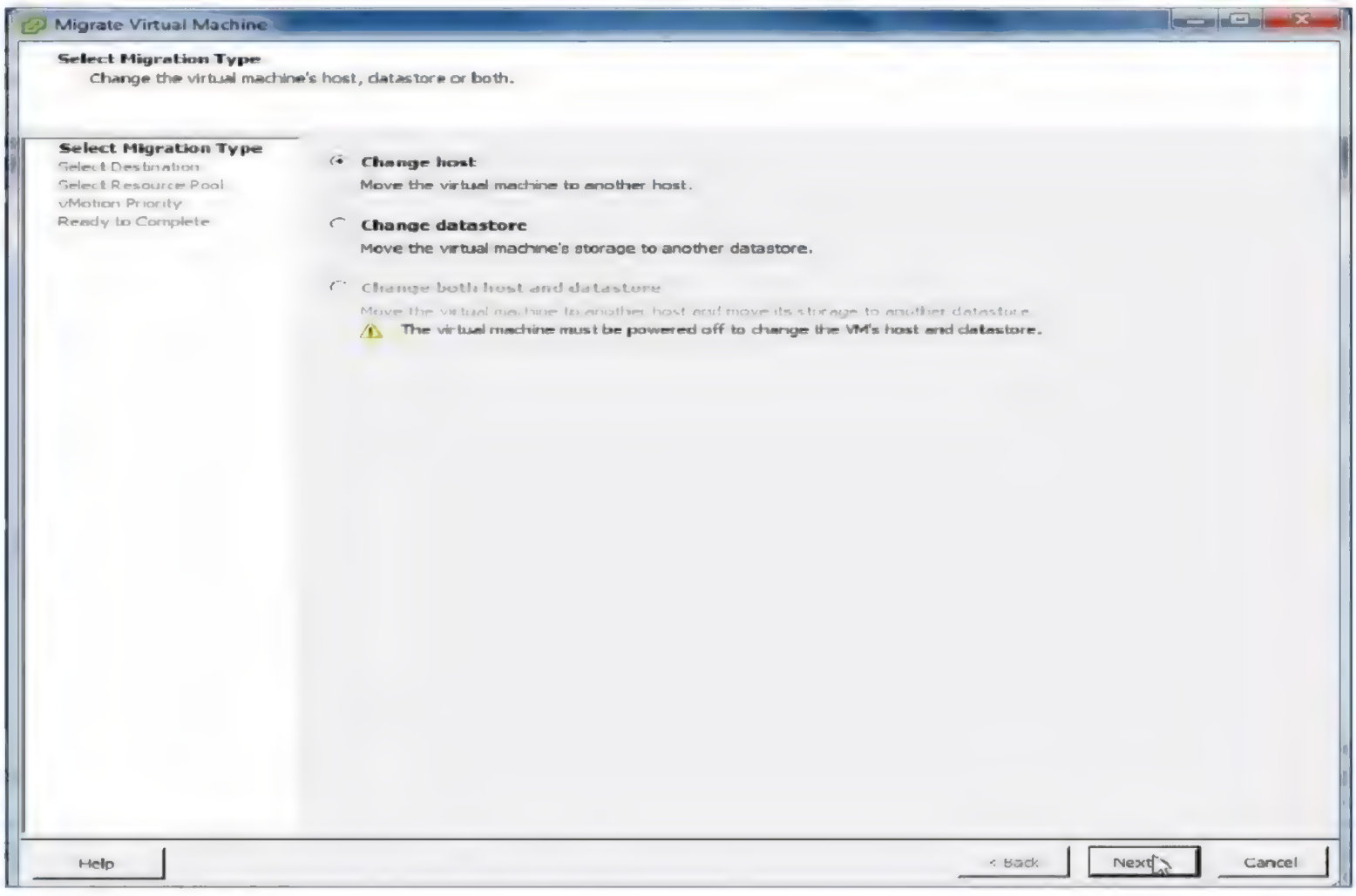
1. Login to vCenter Server



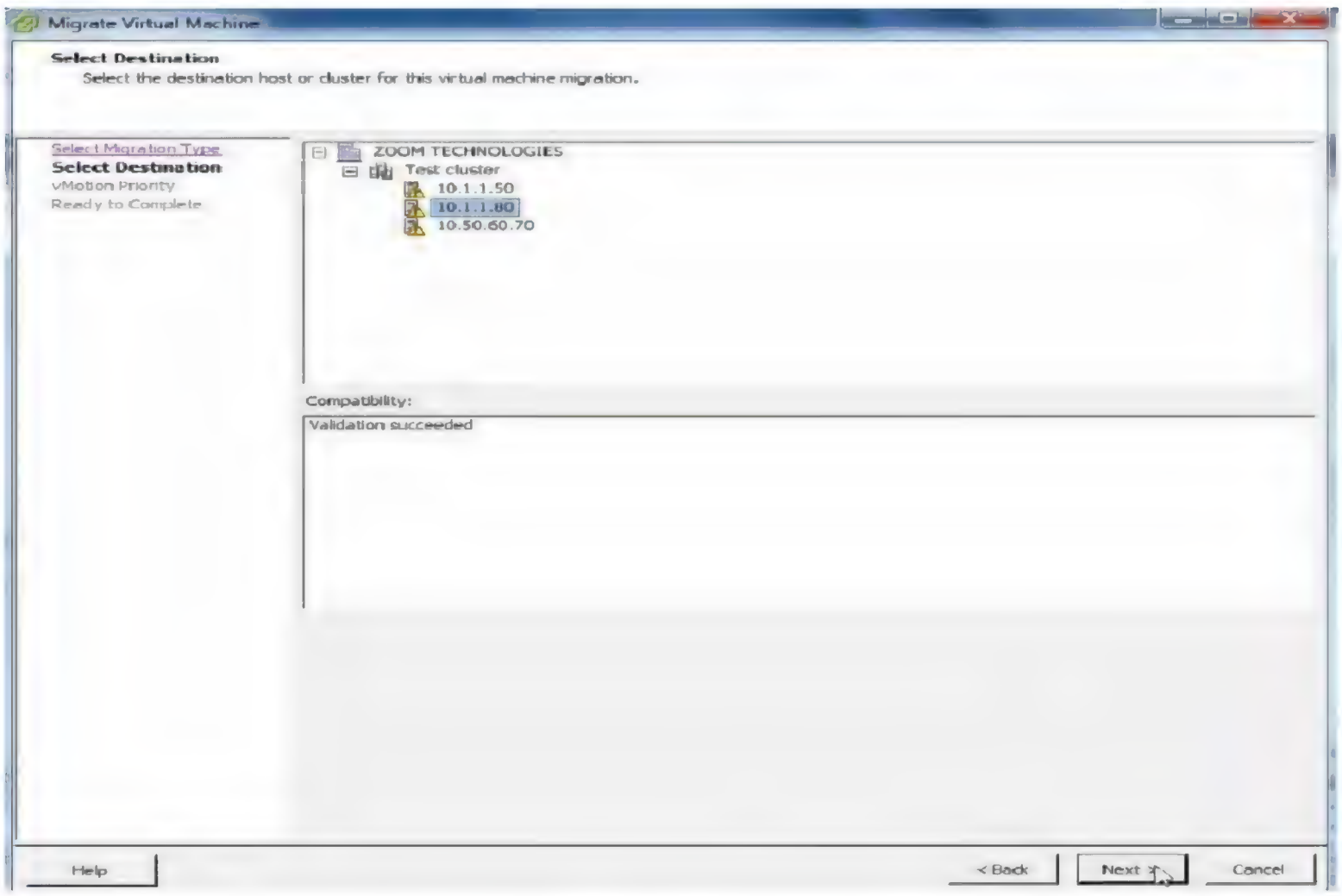
2. Select the VM to migrate, VM is on the Host 10.1.1.50



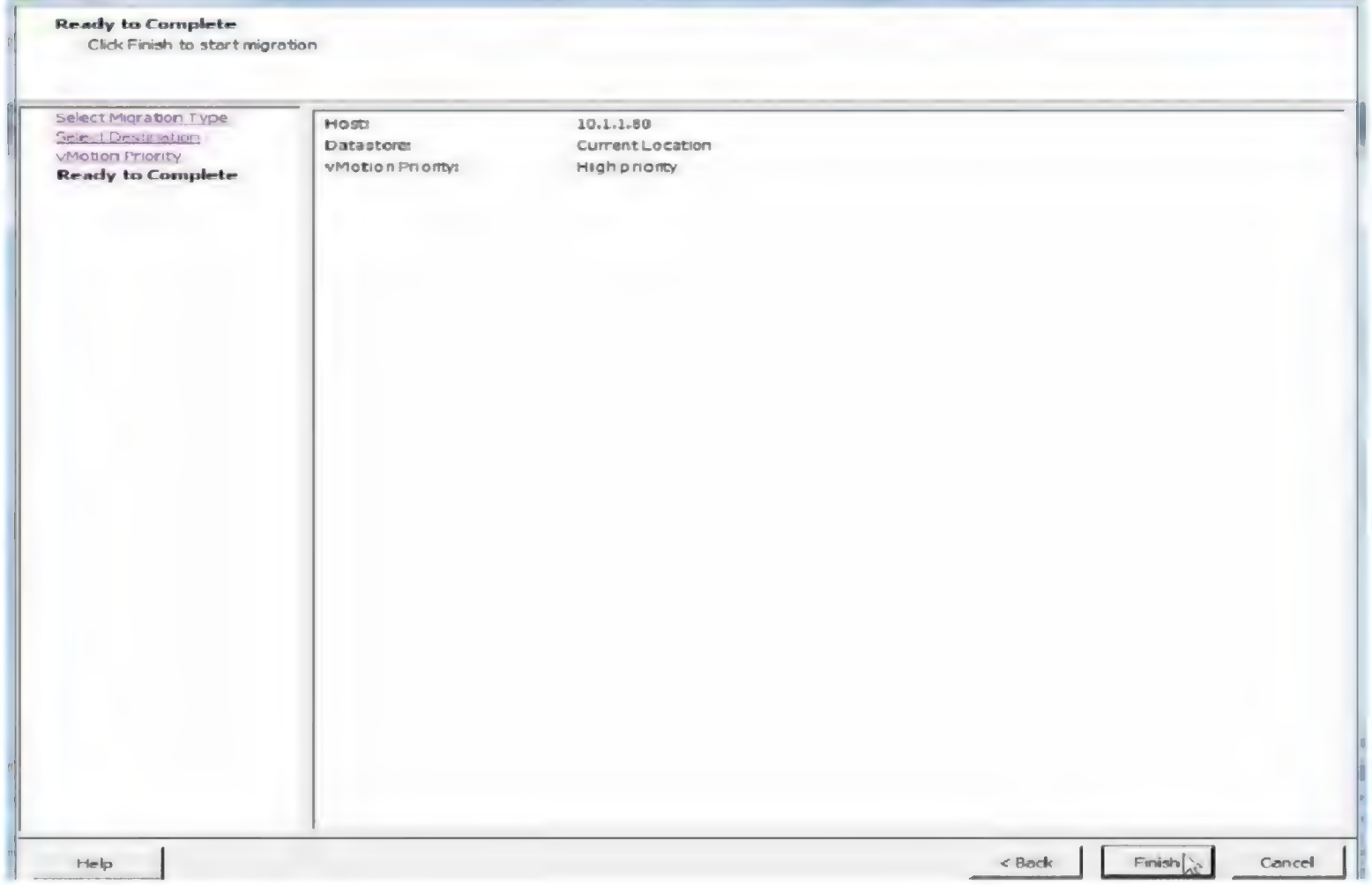
3. Right Click the VM - Migrate



4. Select Change Host - Next to continue

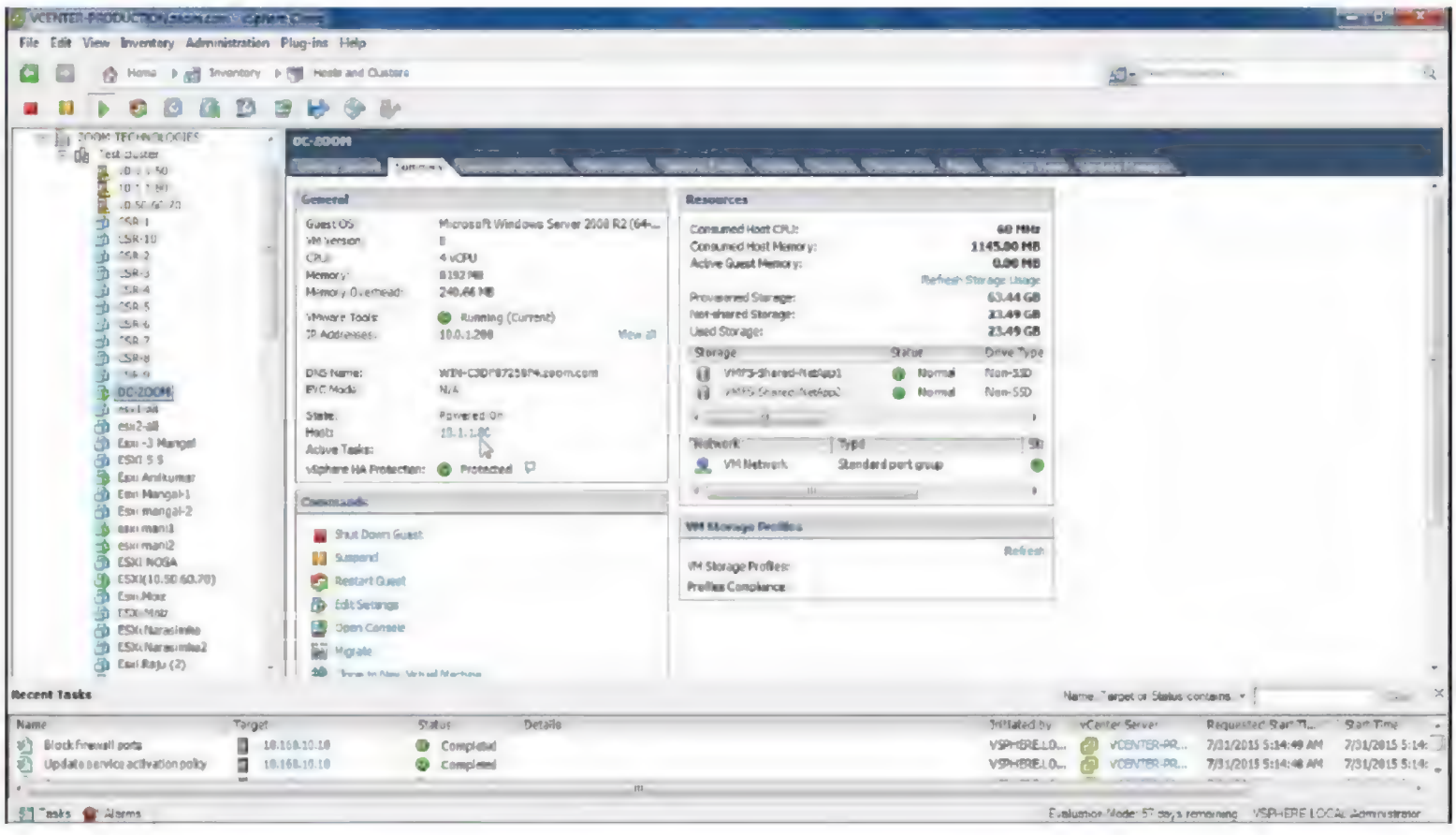


5. Select the destination Host - Next to continue



6. Finish to initiate the migration

Verification:



Observe the VM is now on the Host 10.1.1.80

LAB-16: STORAGE vMOTION

Objective:

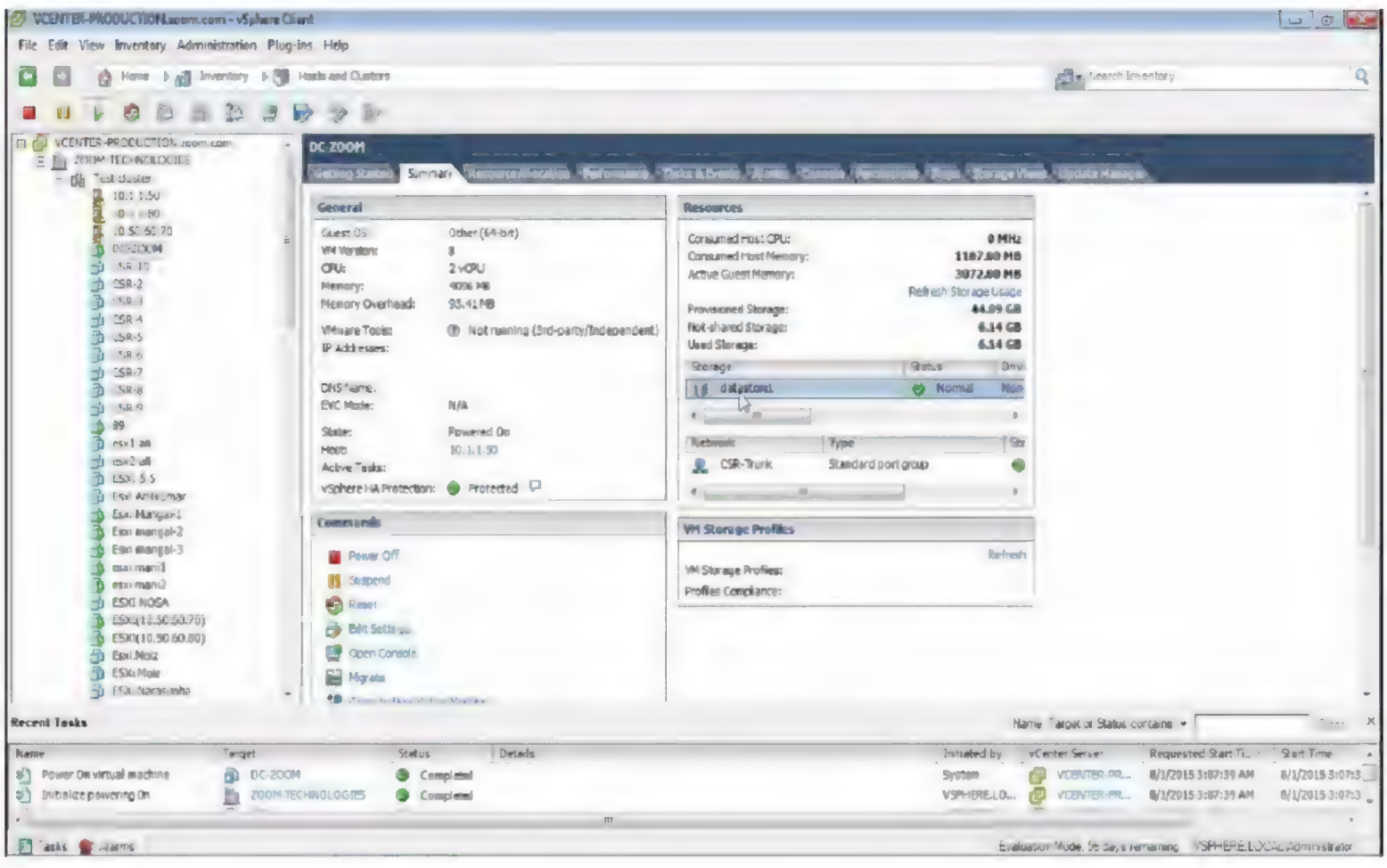
To migrate Virtual Machine from one Data store to another

Prerequisites:

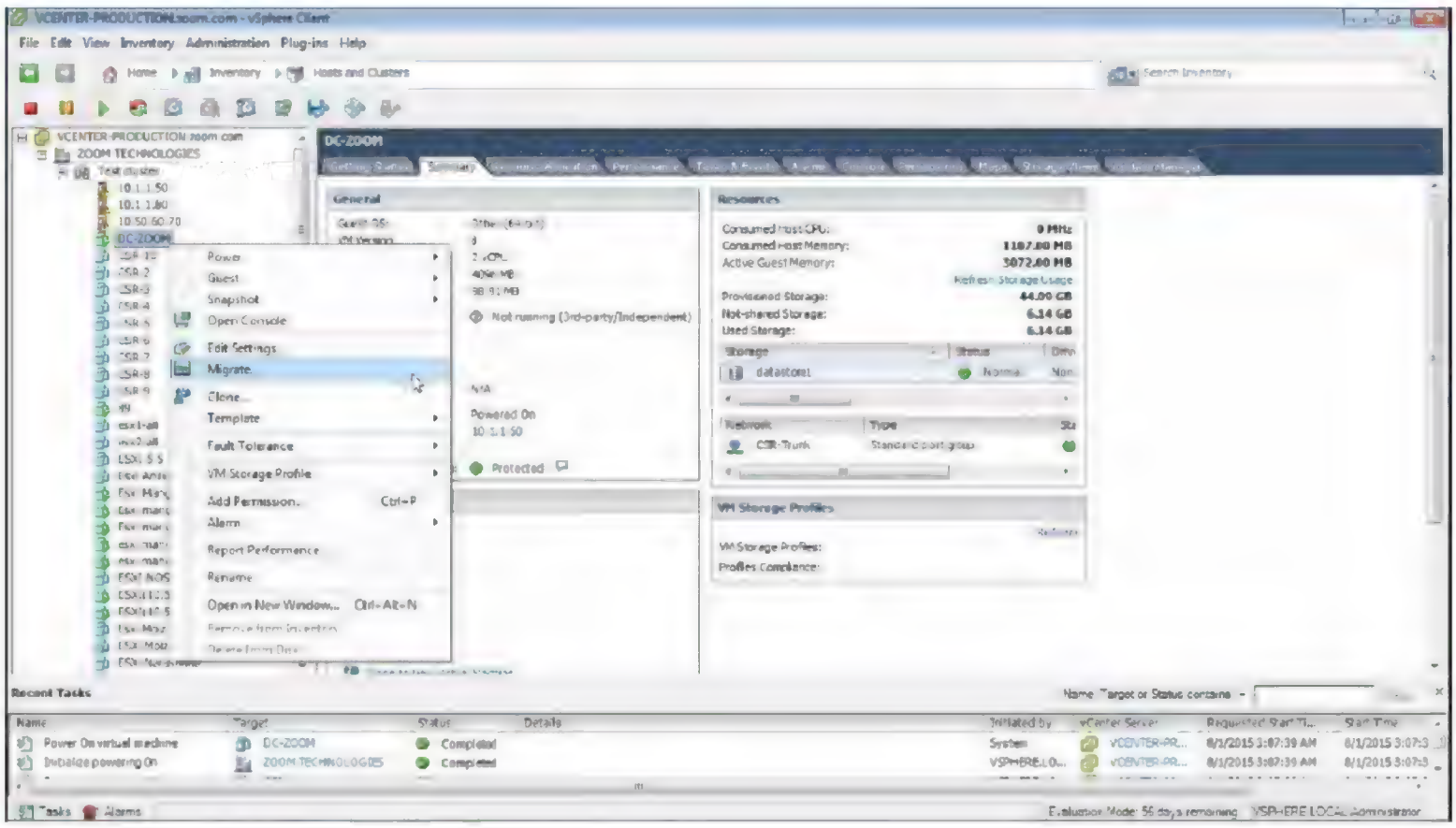
vCenter server

Steps:

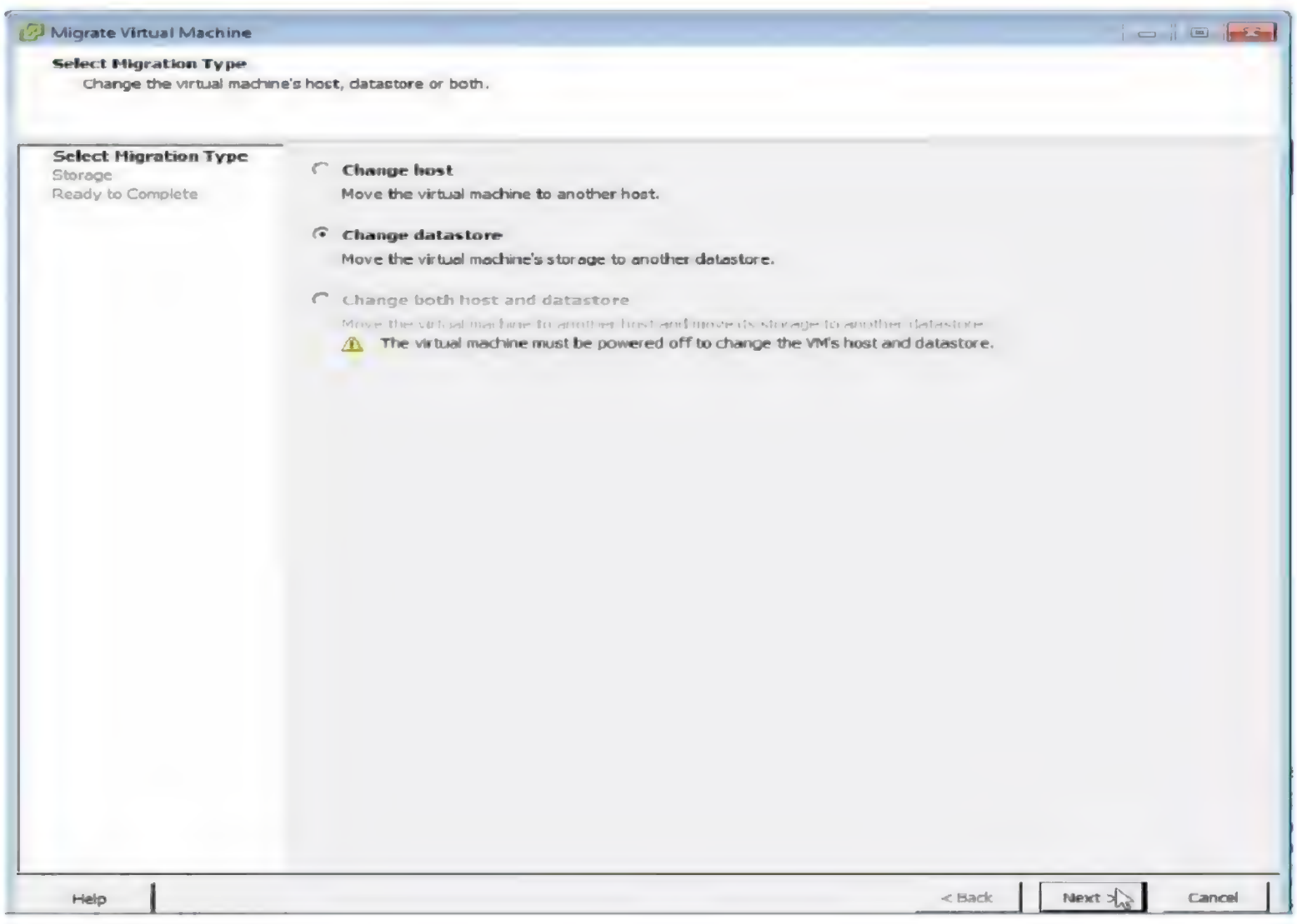
1. Login to vCenter Server



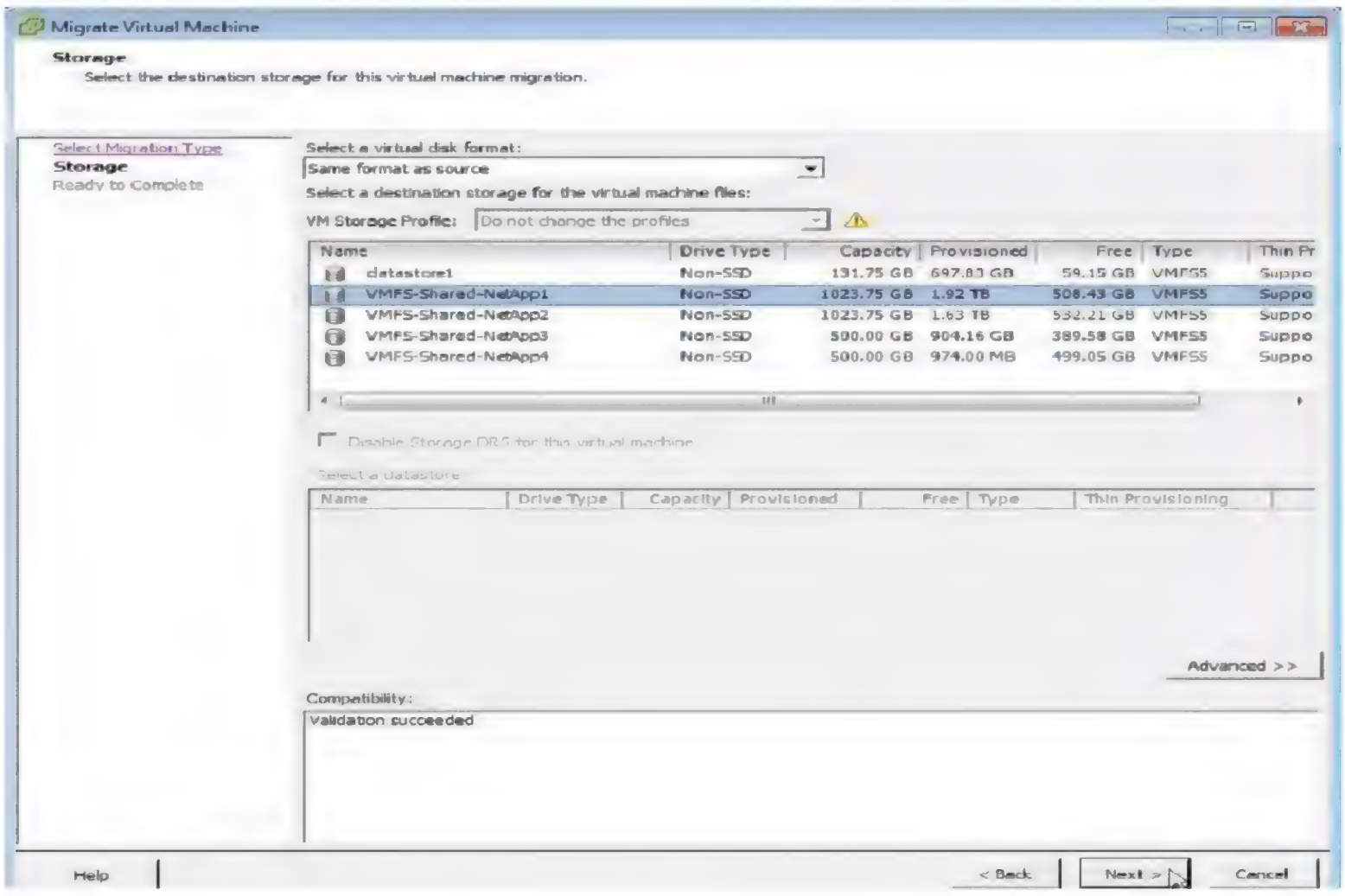
2. Select the VM to migrate, VM is on datastore1



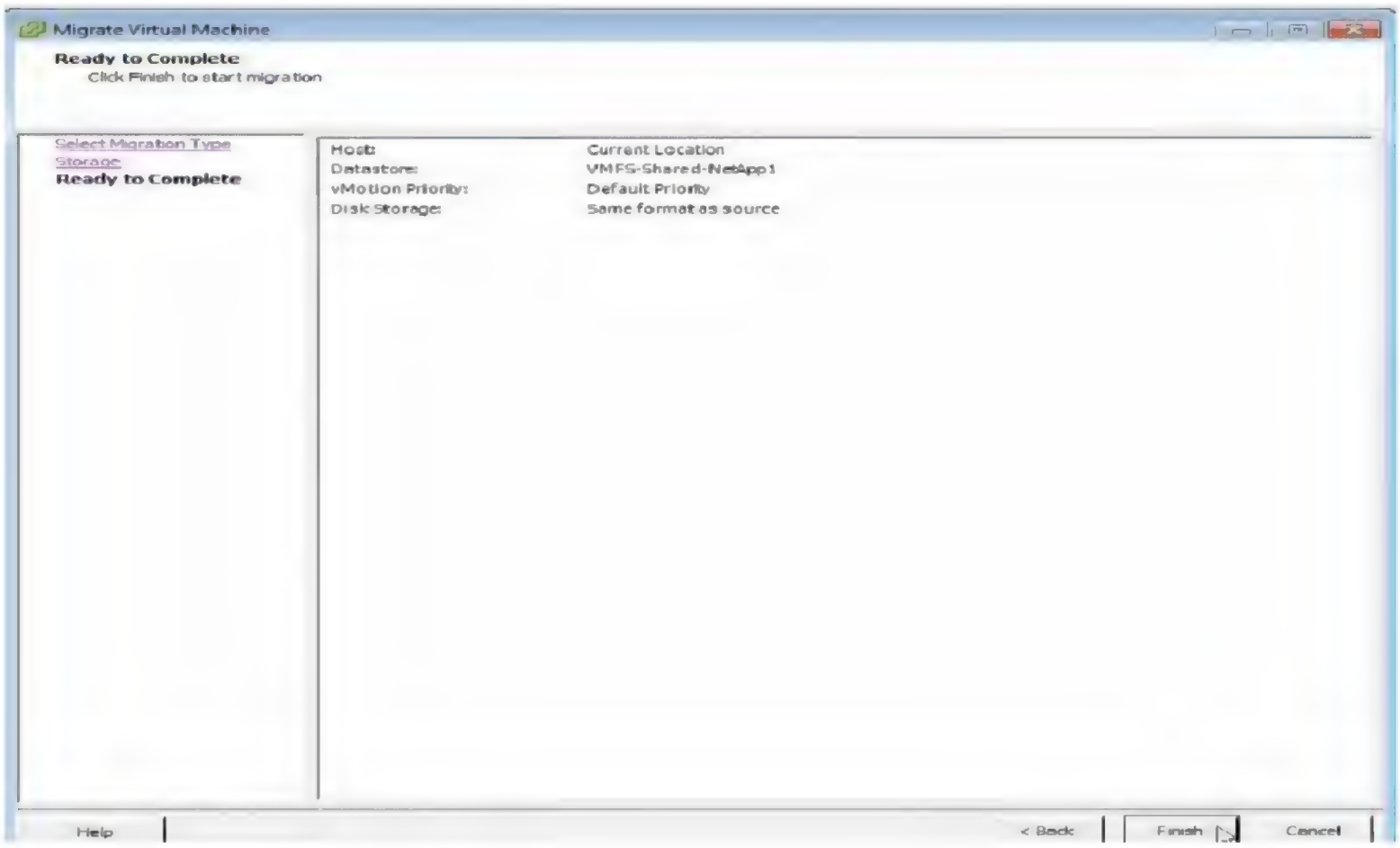
3. 3. Right Click the VM - Migrate



4. Select Change datastore - Next to continue

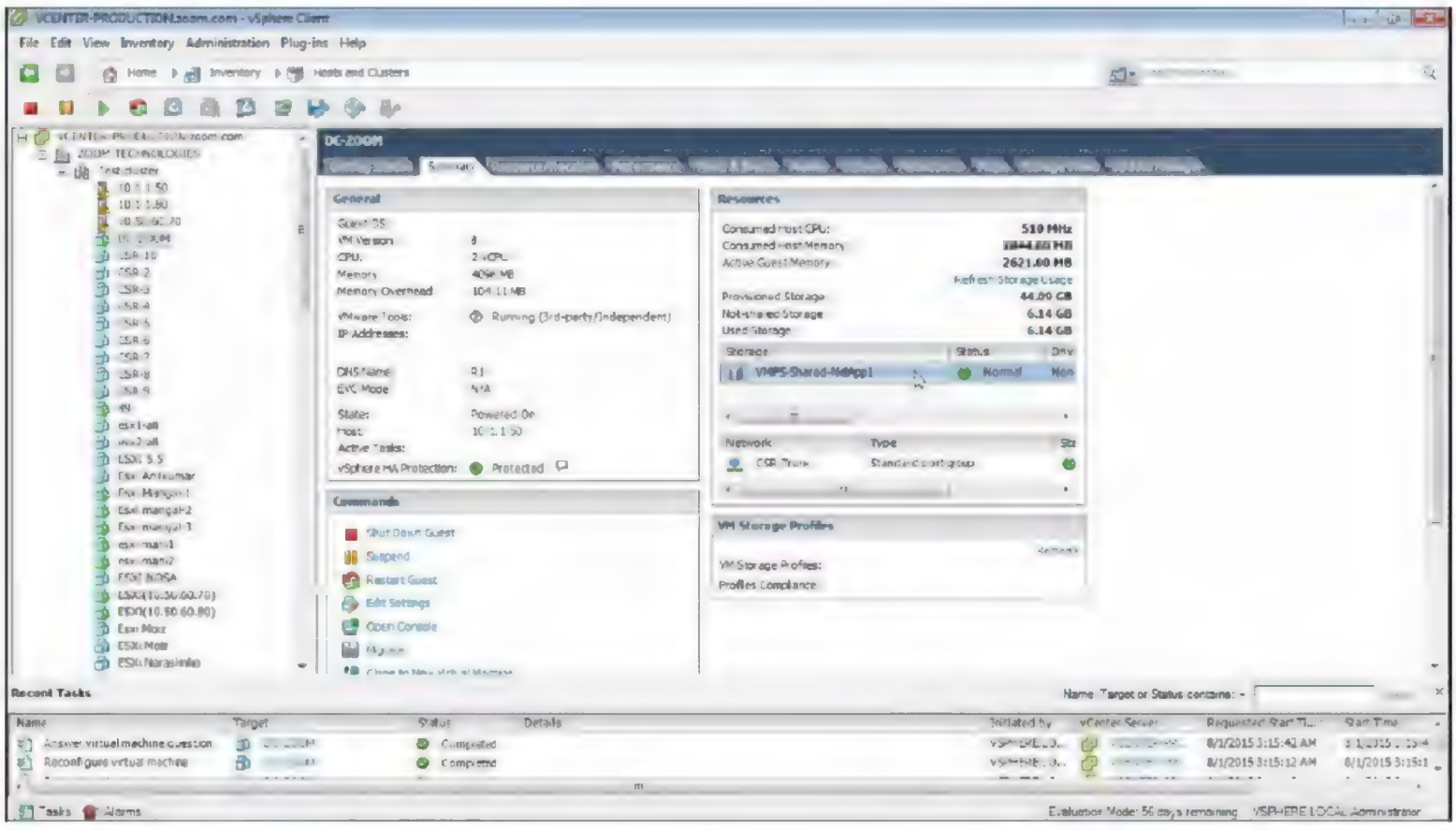


5. Select the destination datastore - Next to continue



6. Finish to initiate migration

Verification:



Observe VM is now on datastore VMFS-Shared-NetApp1

LAB-17: ENHANCED vMOTION

Objective:

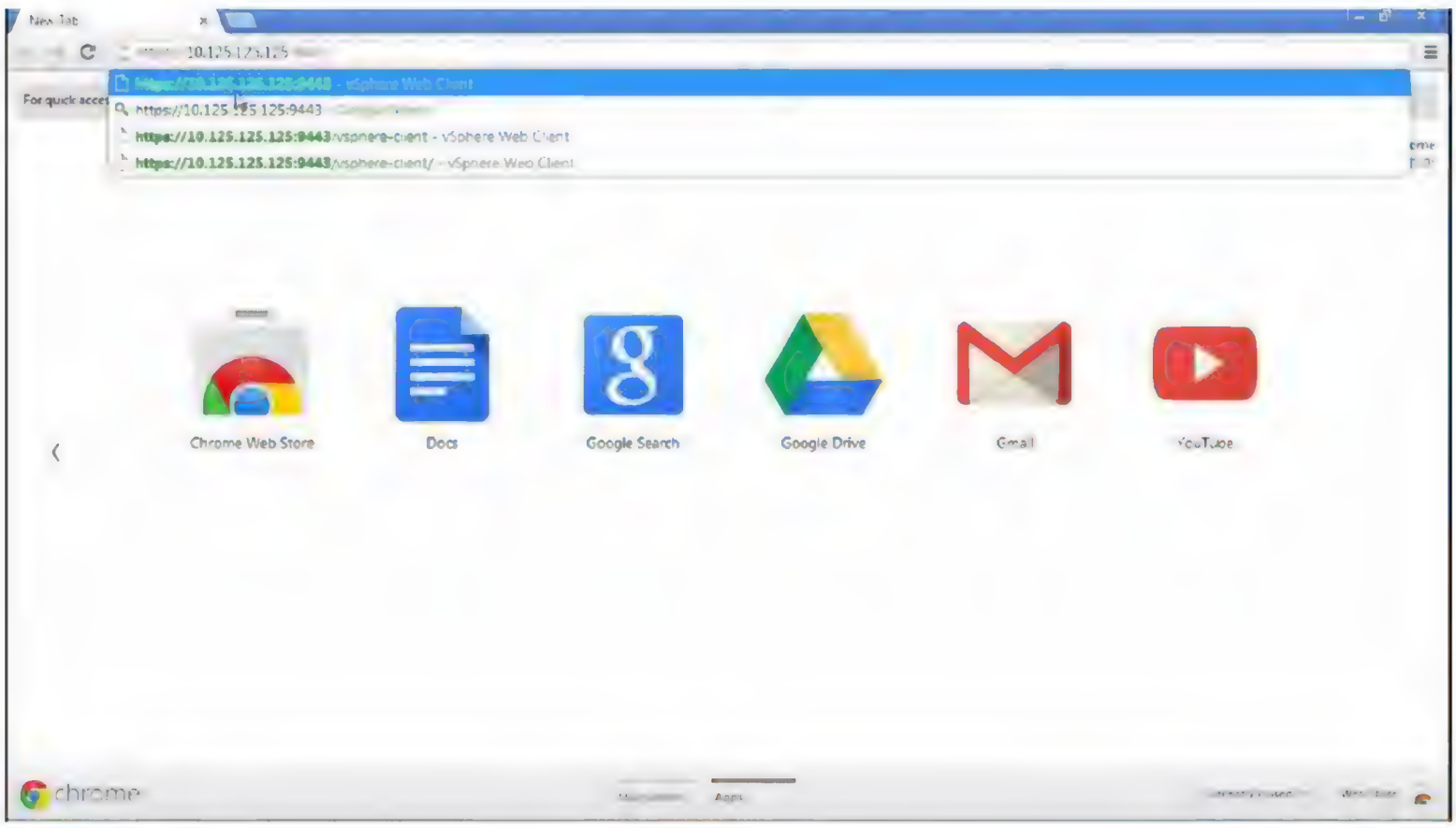
To migrate Virtual Machine from one Host and Datastore to another simultaneously

Prerequisites:

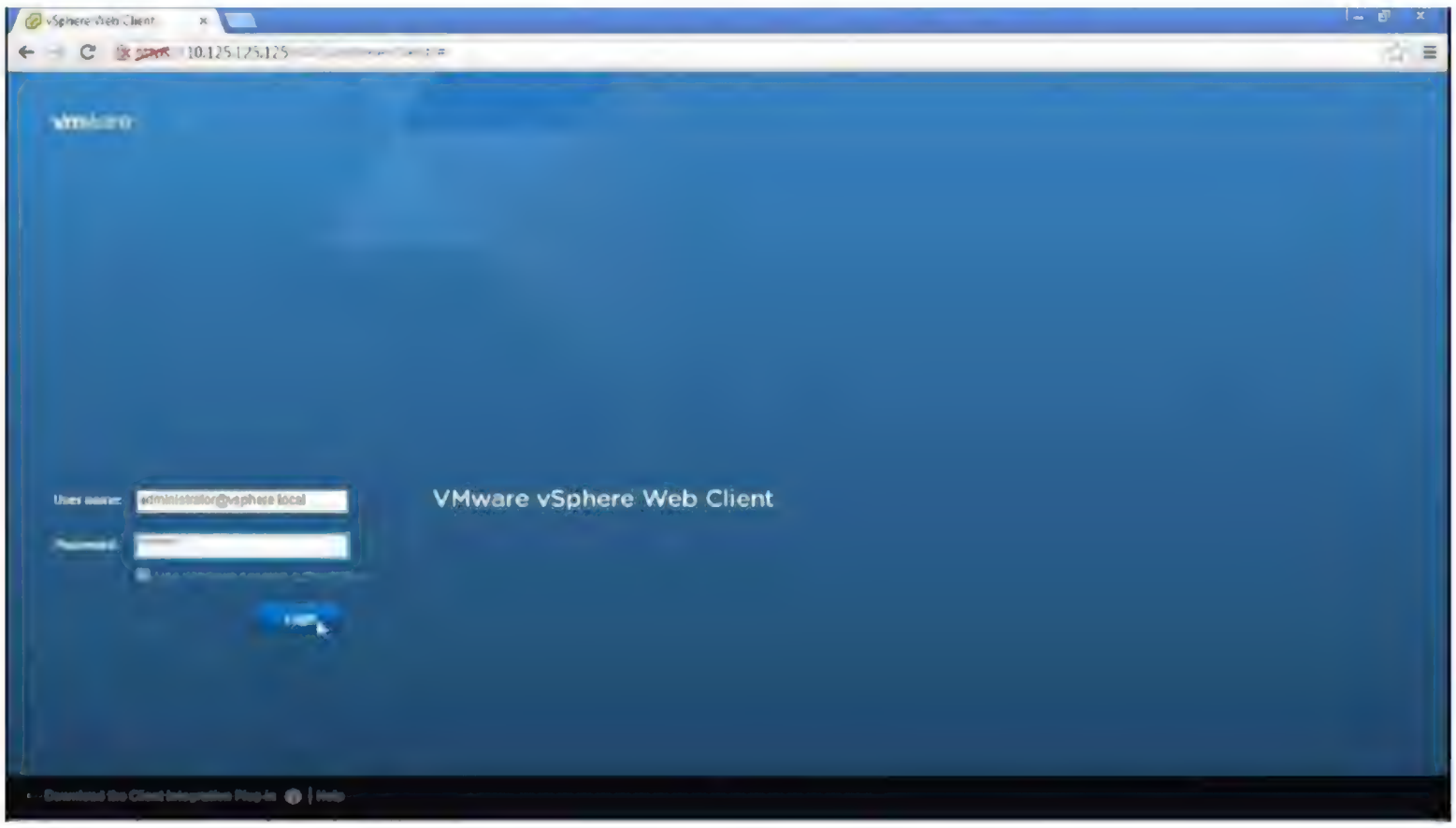
vCenter Server

Steps:

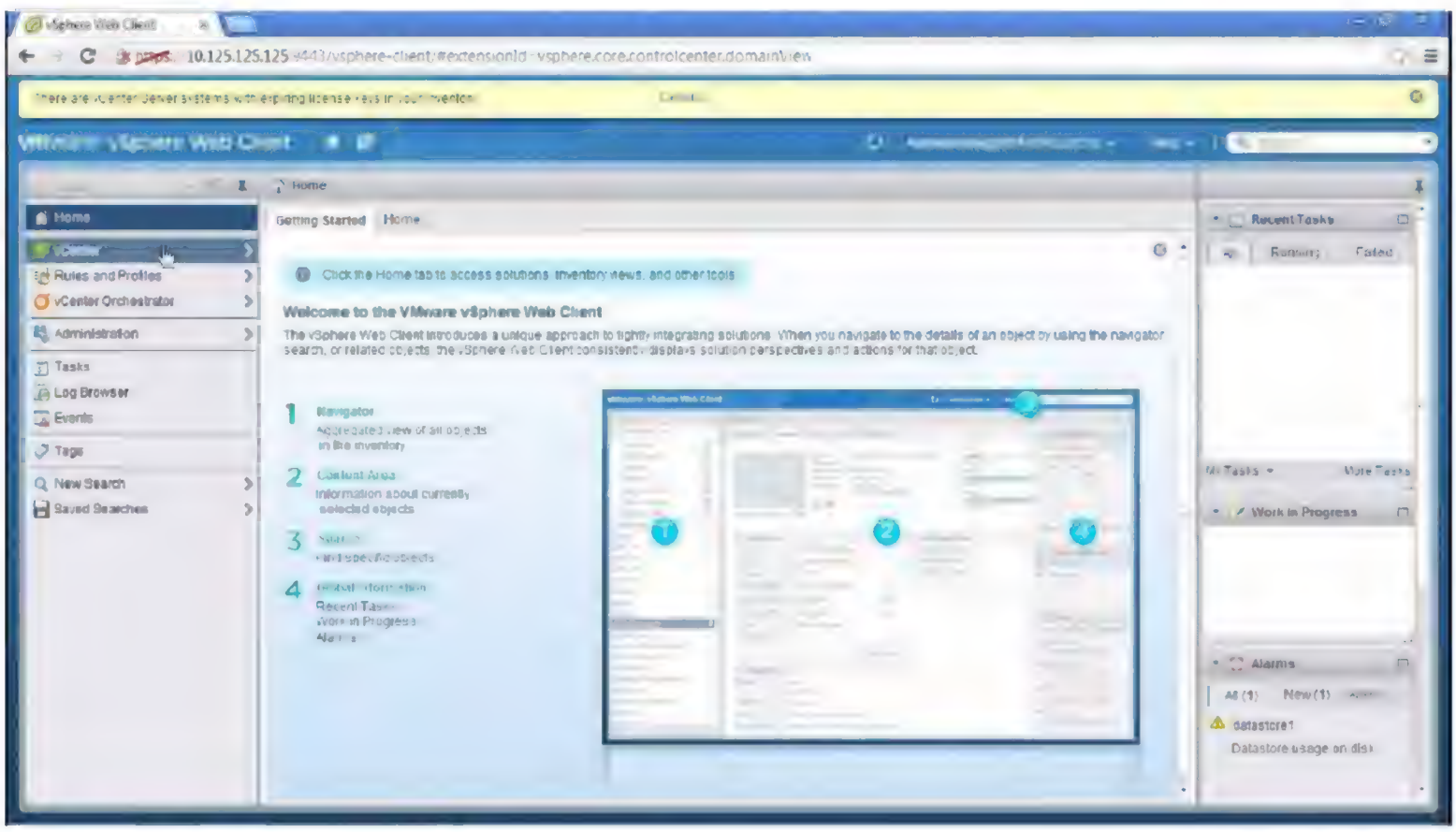
1. Login to vCenter Server using web client by Launching a browser



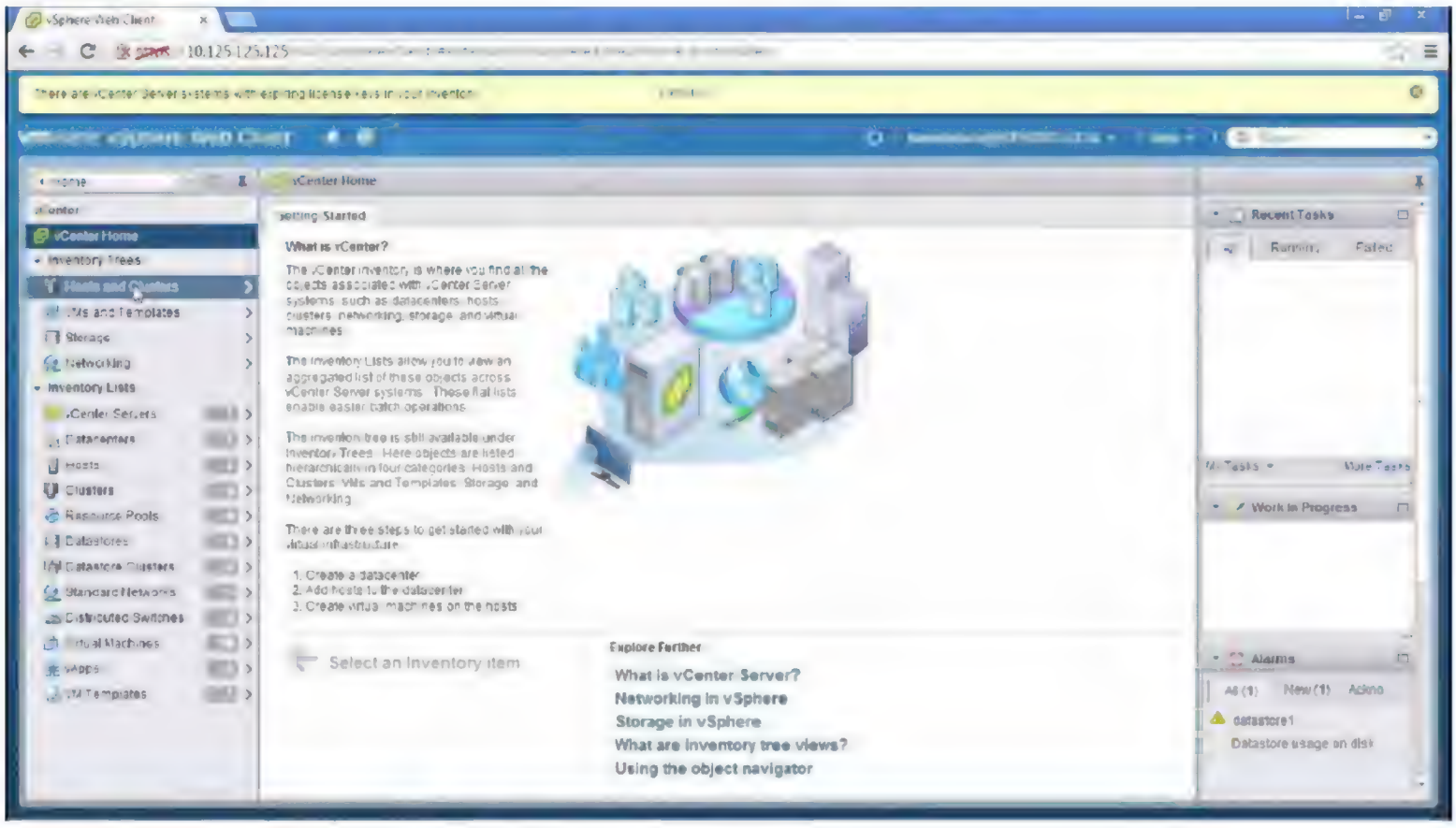
2. Enter the urlhttps://ip/hostname of webclient:9443



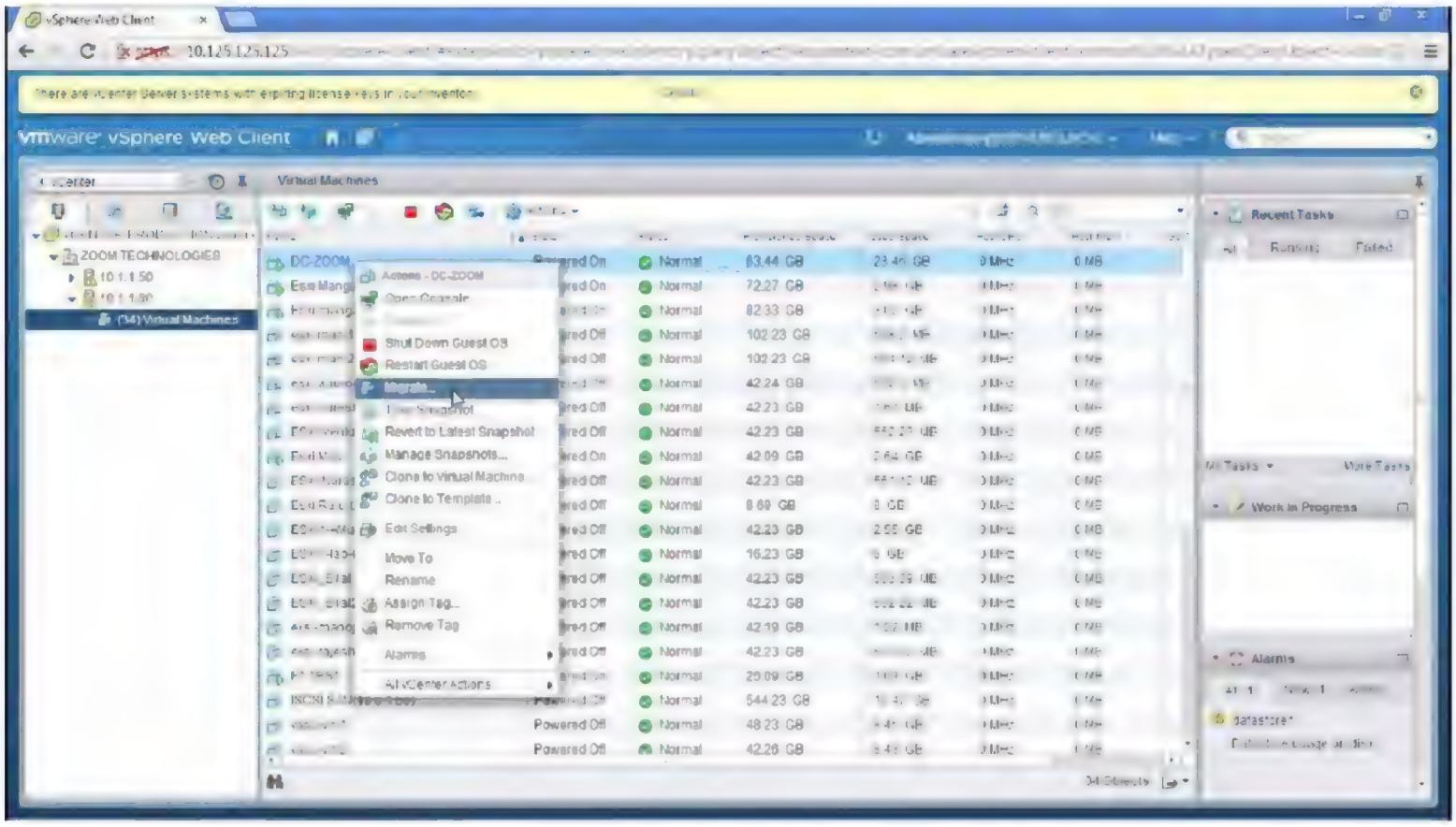
3. Enter the credentials to access vCenter Server – Login to continue



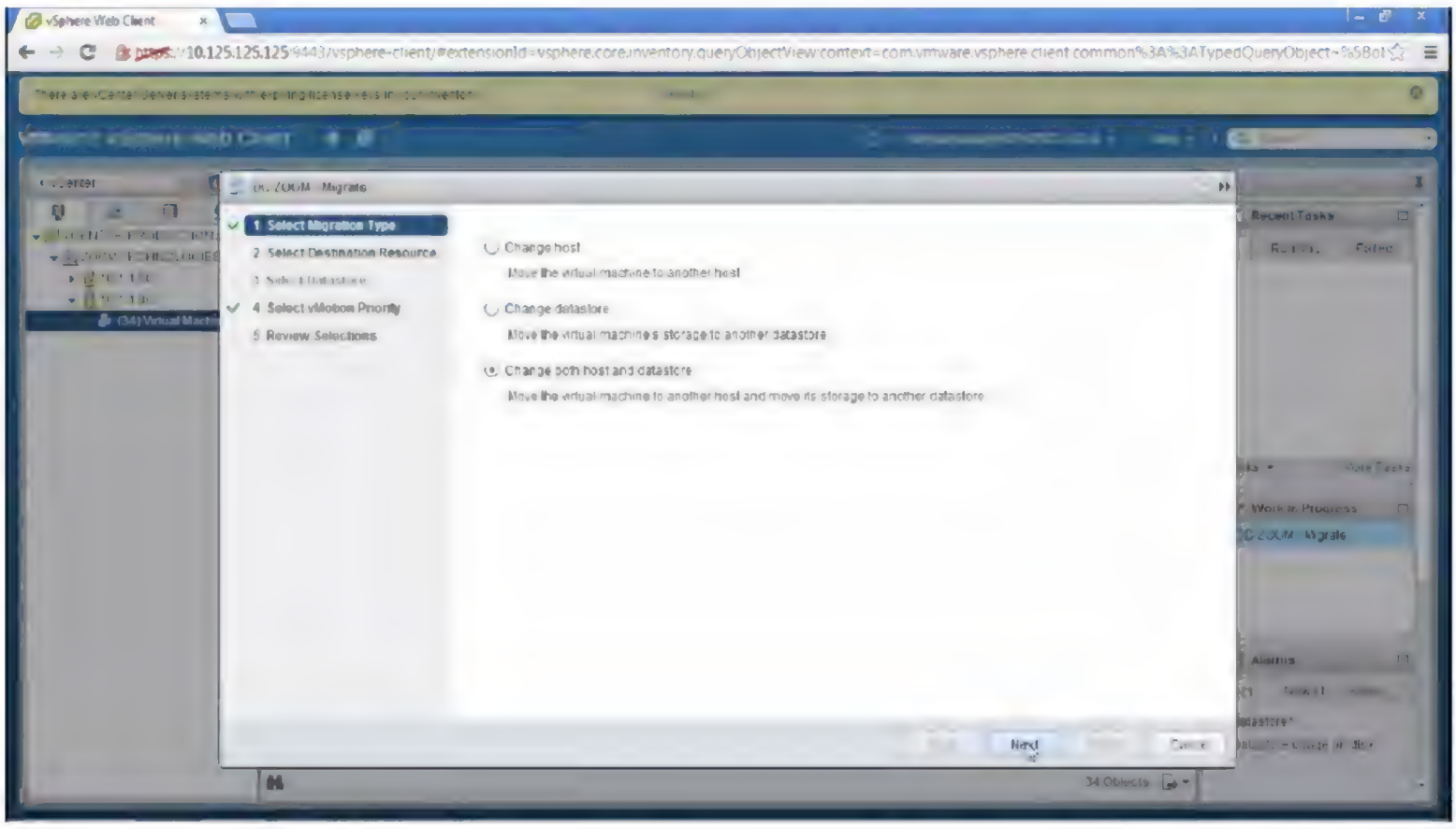
4. Click on vCenter



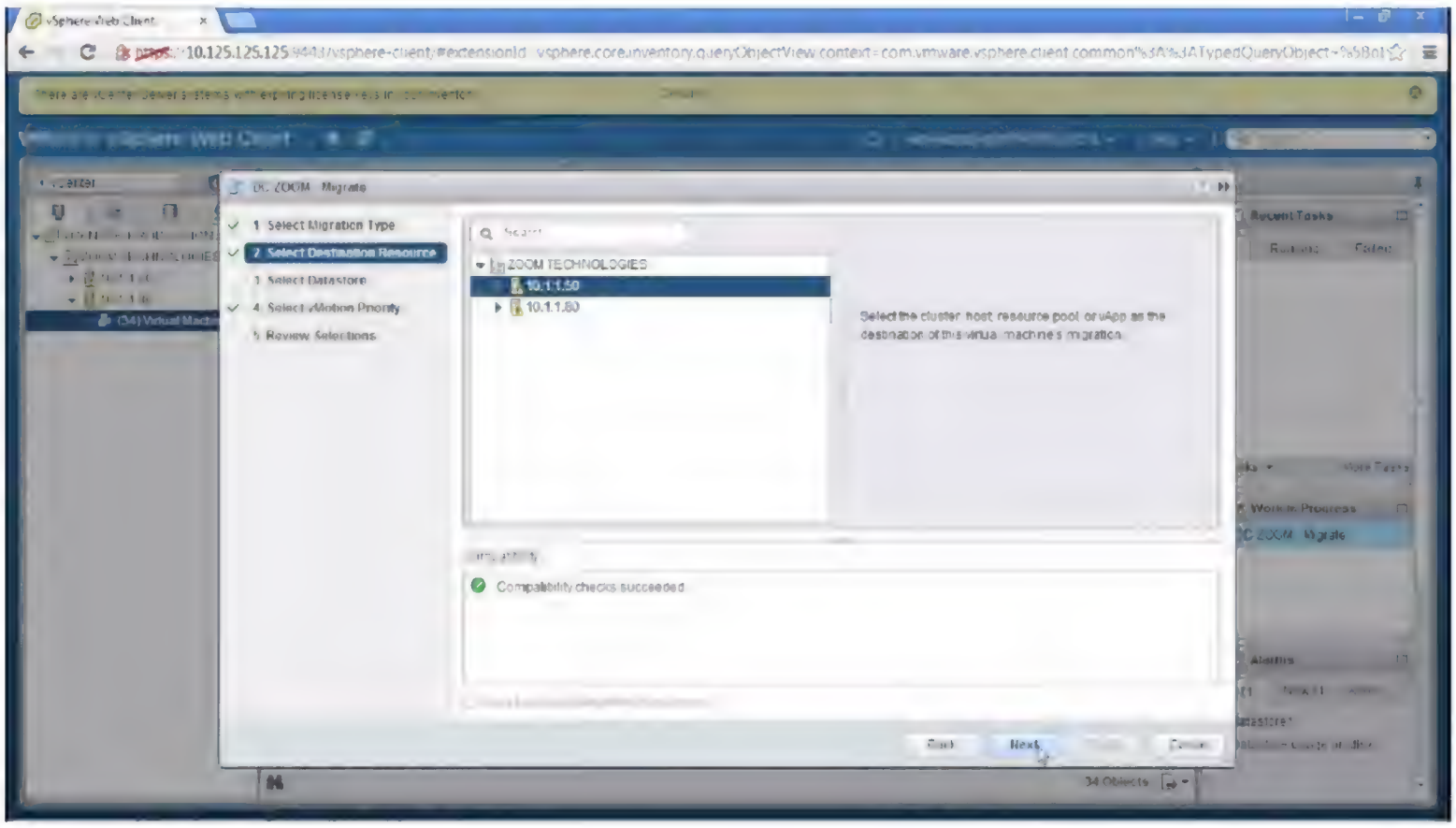
5. Click on Host and Clusters



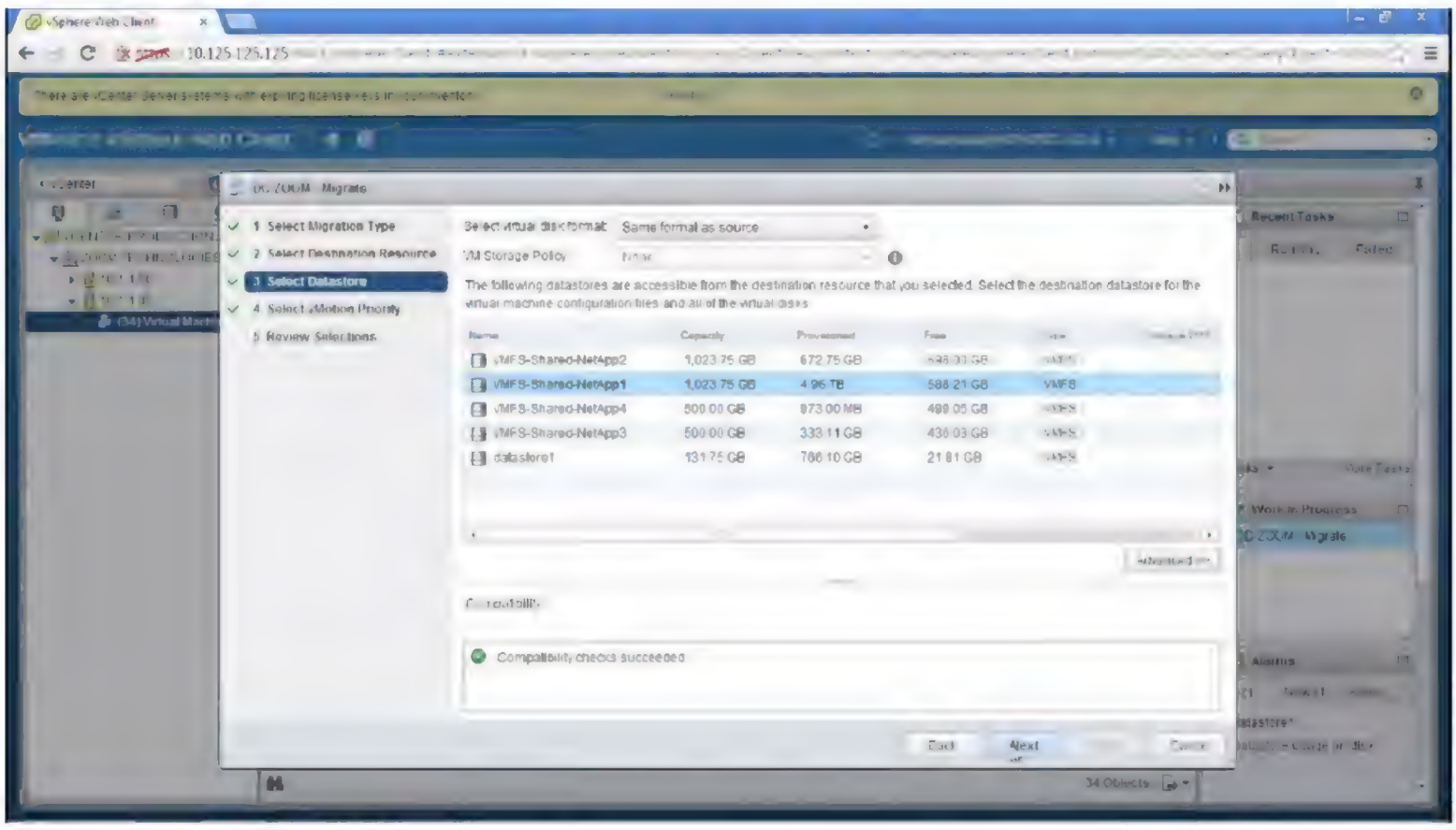
6. Right Click on the VM - Migrate



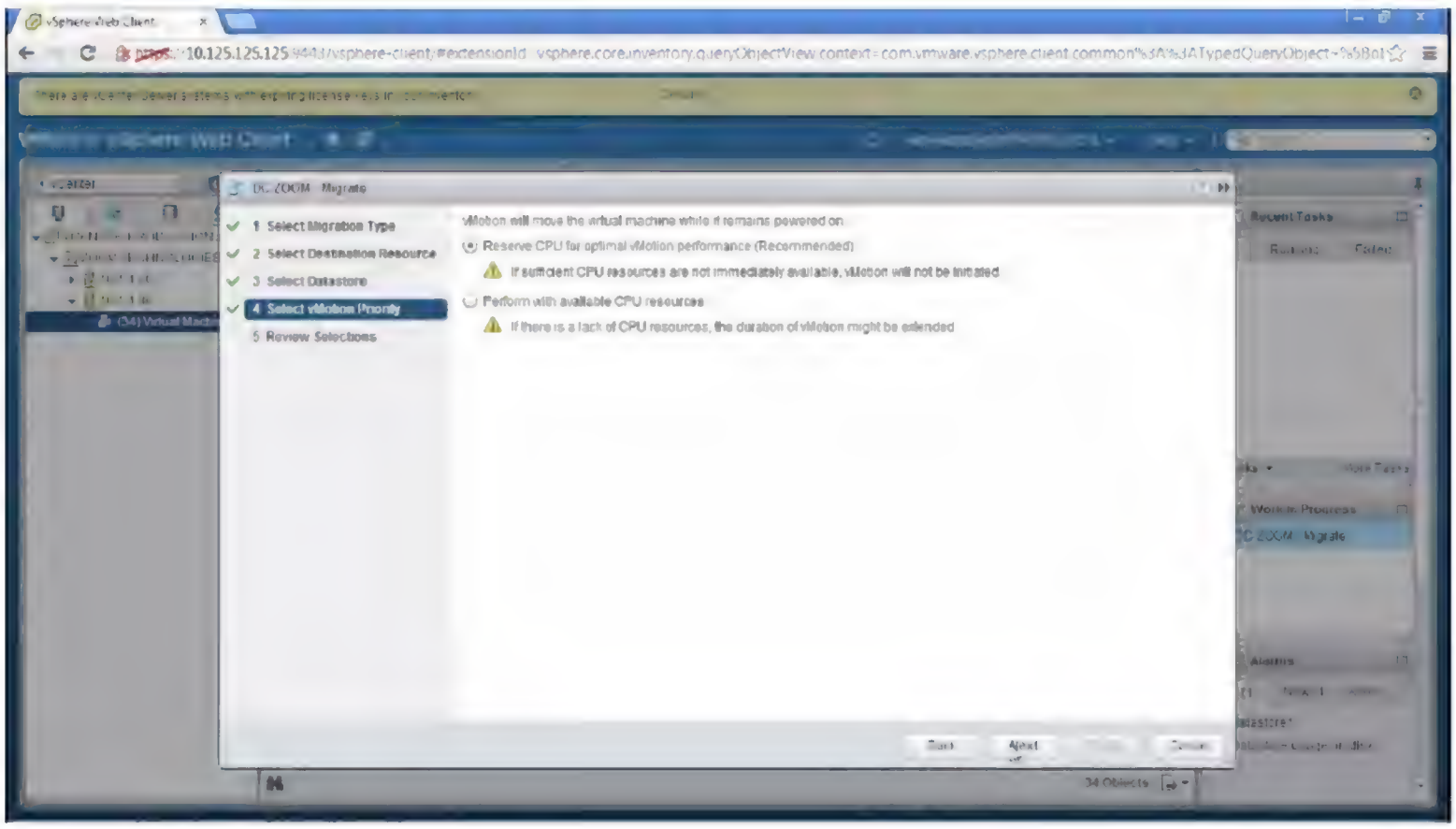
7. Select Change both host and datastore – Next



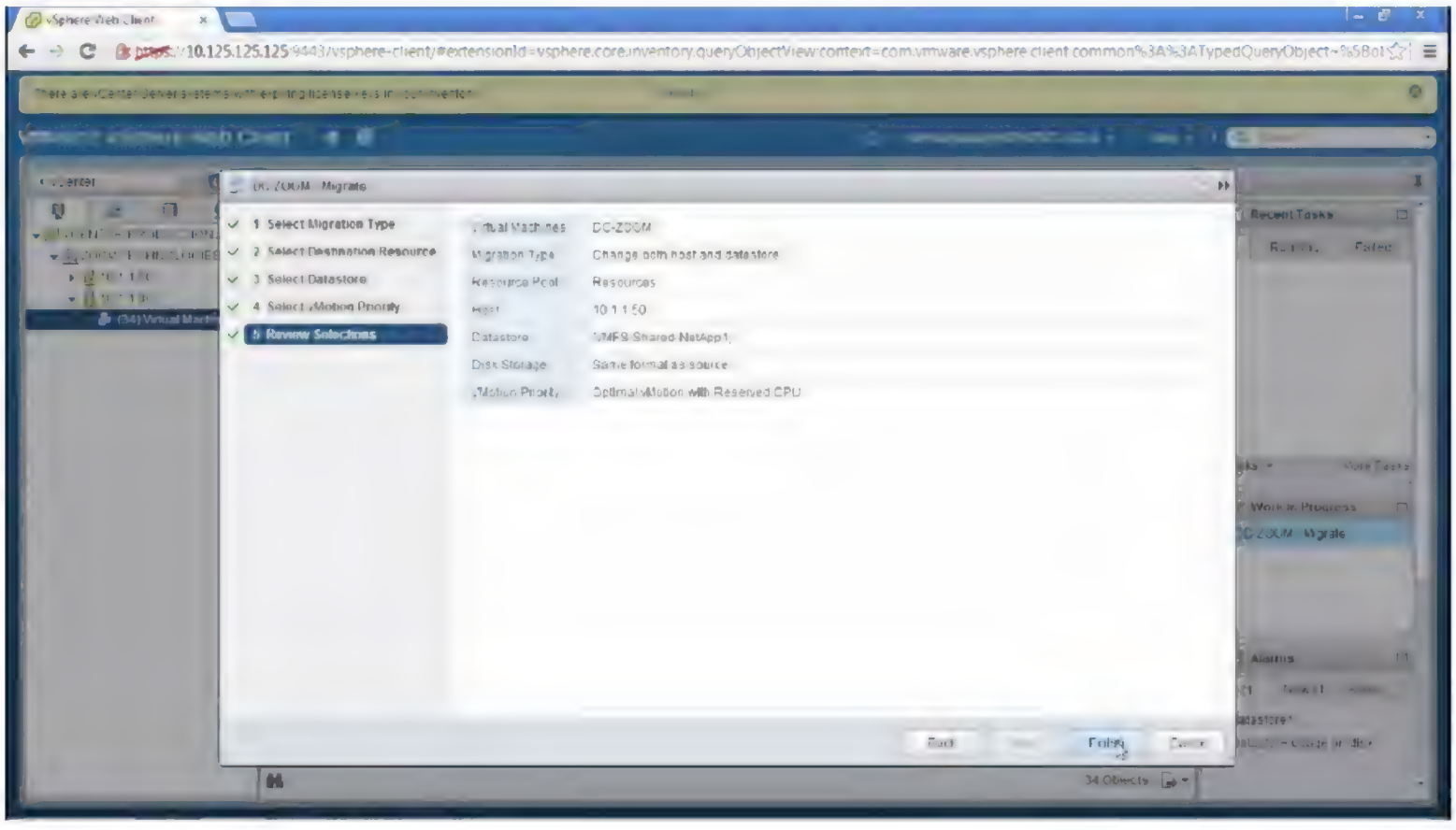
8. Select the destination Host, Next to continue



9. Select the destination datastore



10. Select default option, Next to continue



11. Finish to complete Enhance vMotion

LAB-18: vSPHERE HIGH AVAILABILITY

Objective:

To configure vSphere High Availabilty

Prerequisites:

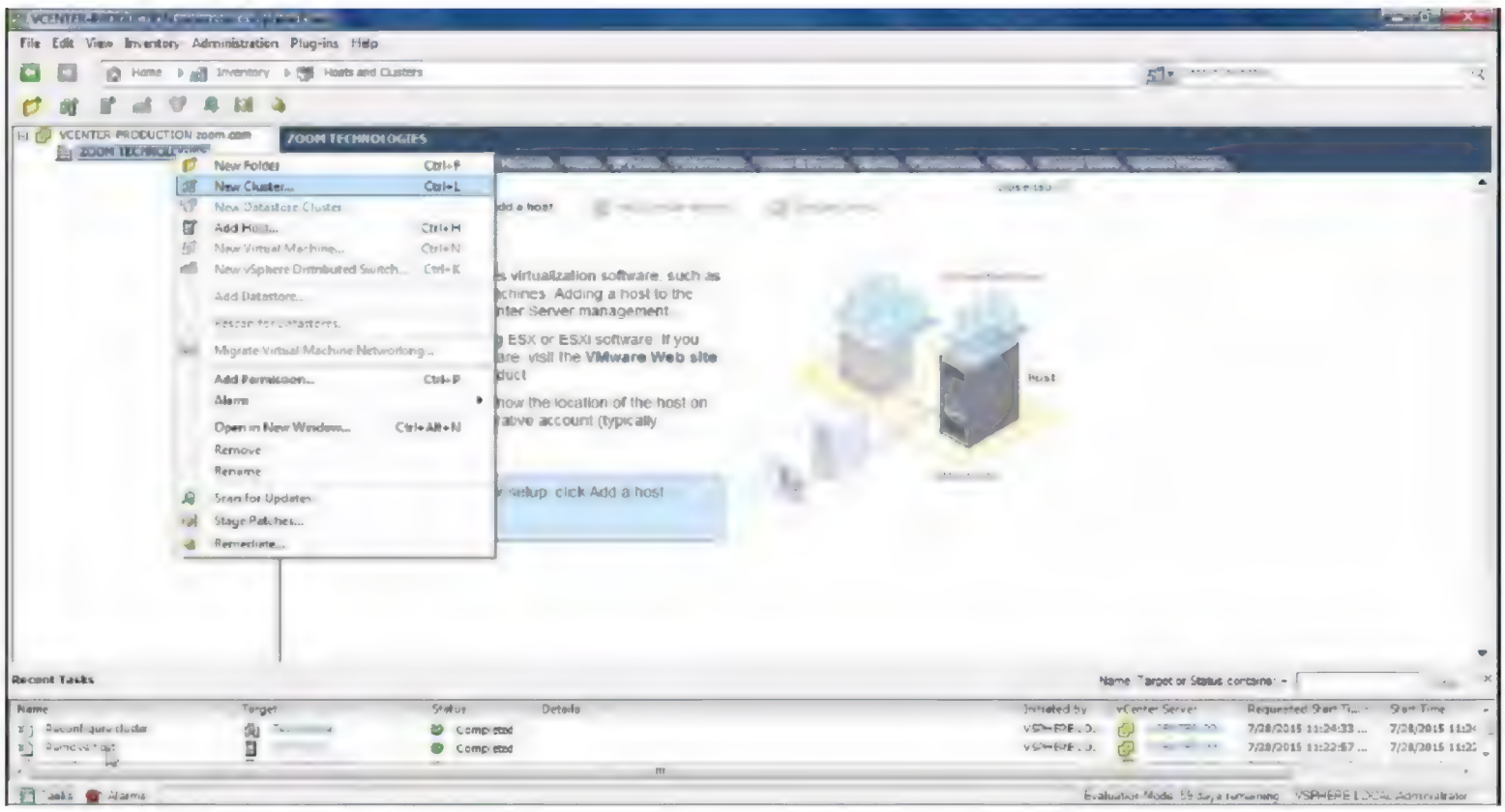
vCenter Server

Tasks:

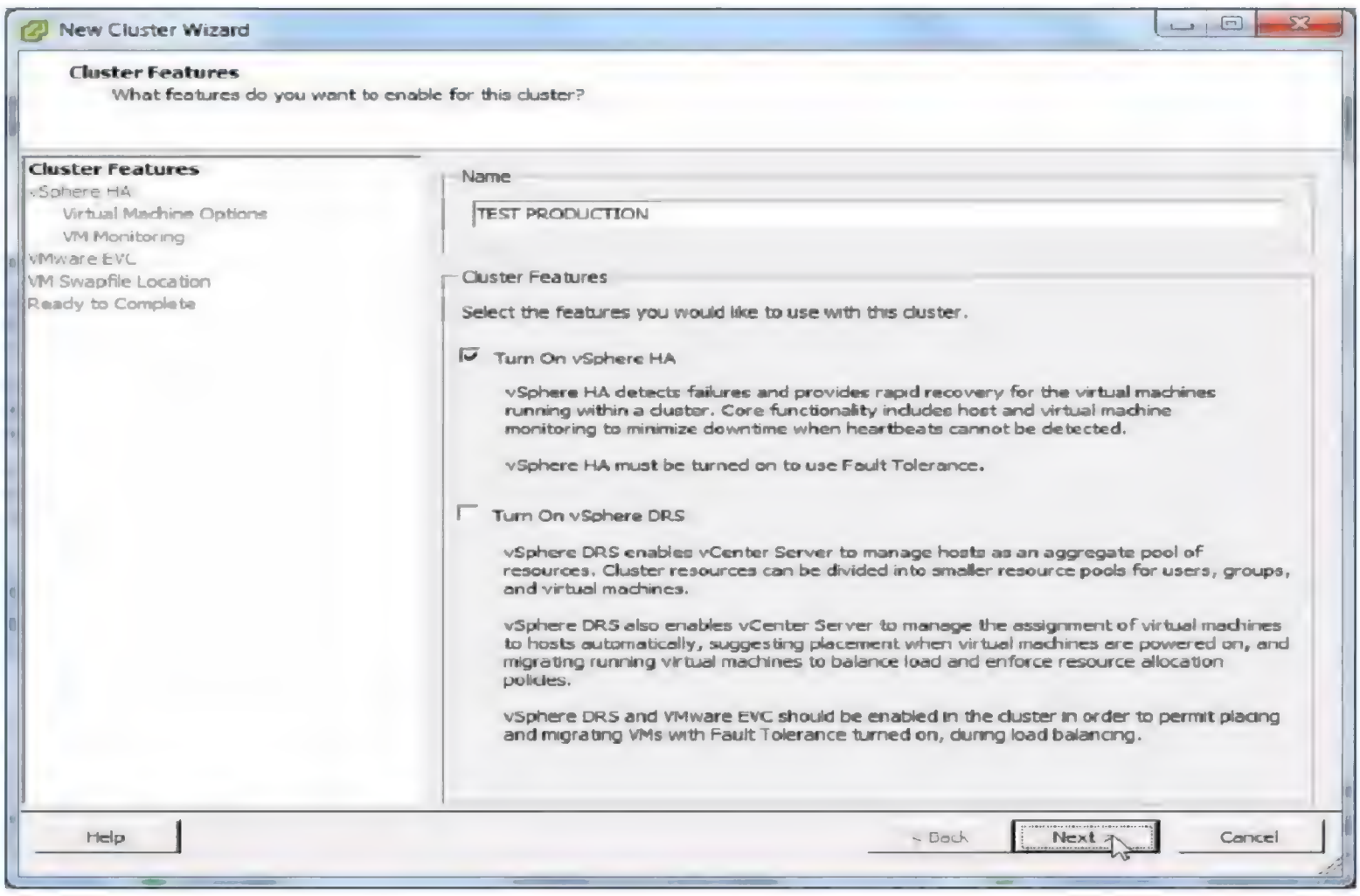
- Create a Cluster
- Add ESXi Host to Cluster
- Test vSphere HA

Steps:

1. Login to vCenter Server

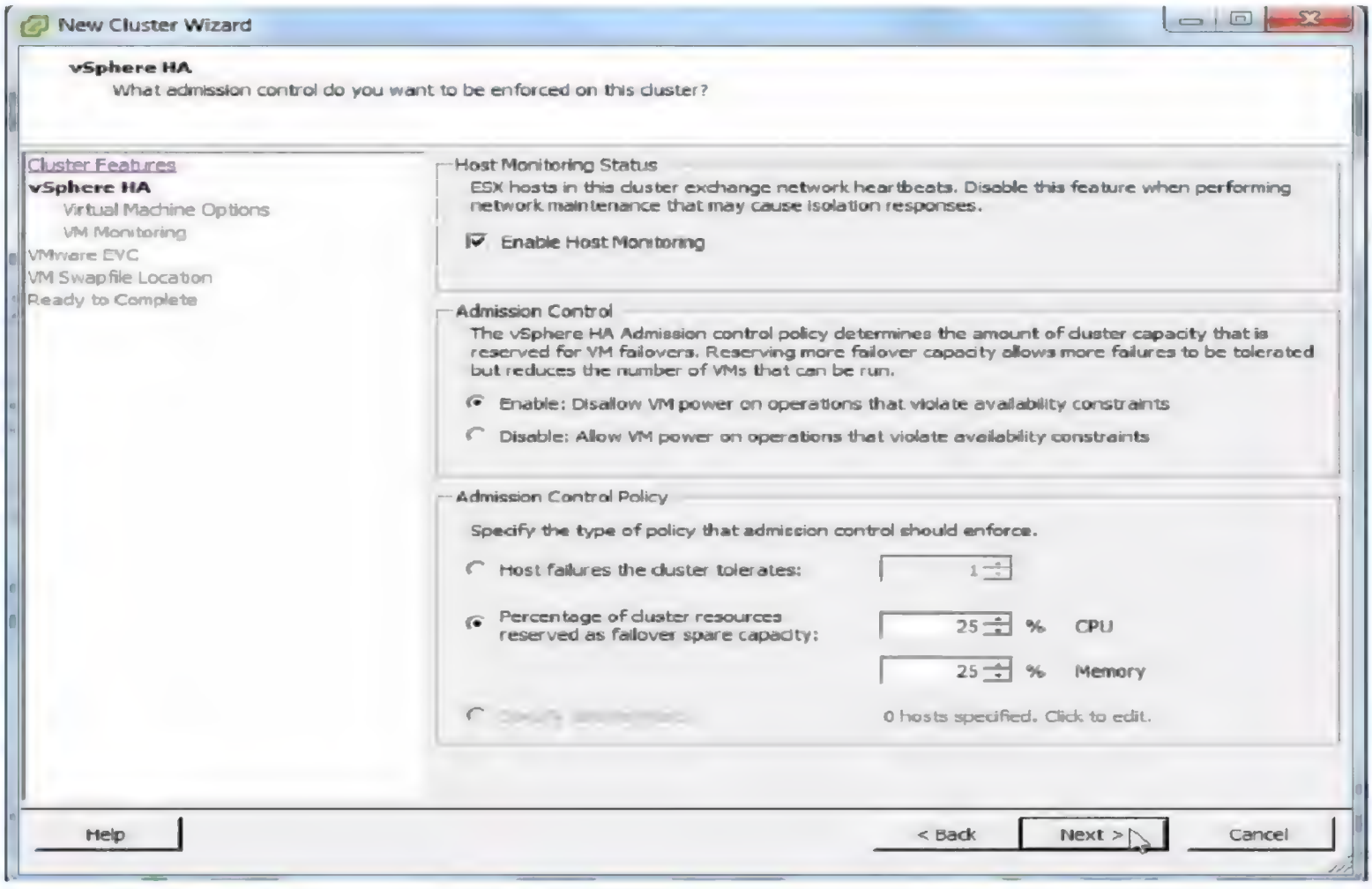


2. Right Click on a Datacenter - New Cluster

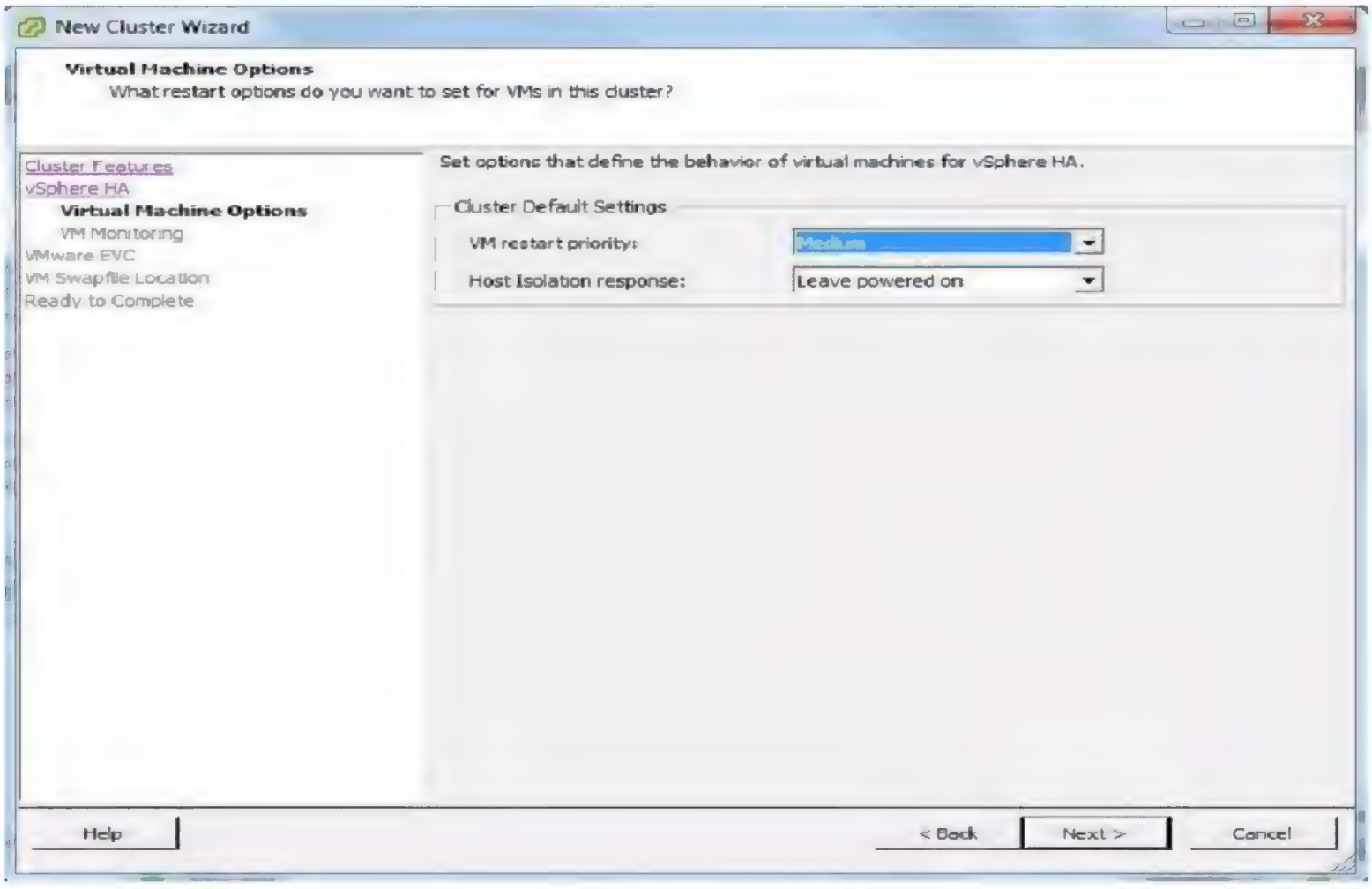


3. Enter a Name for cluster, example Test Production

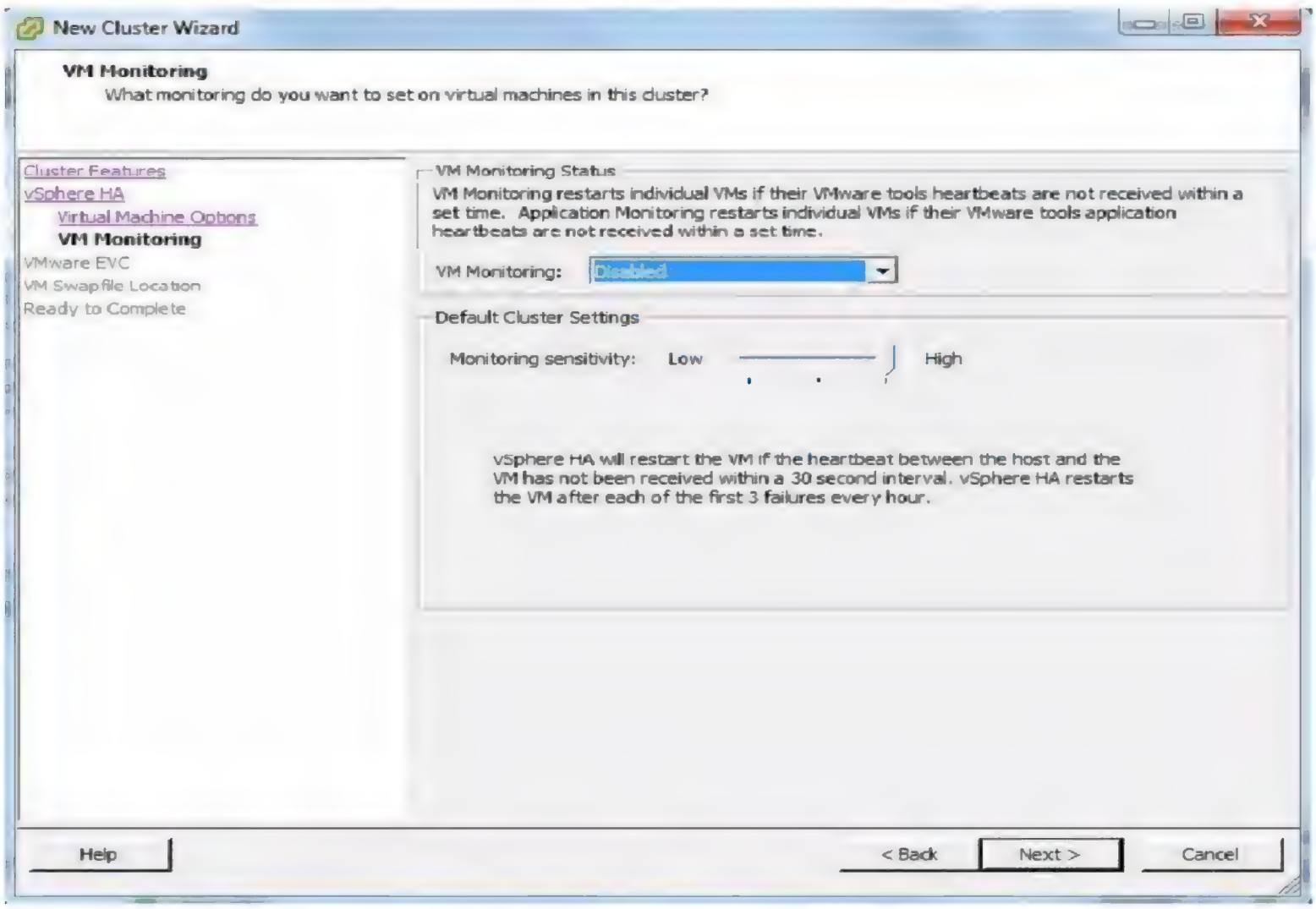
Check the box Turn on vSphere HA - Next to continue



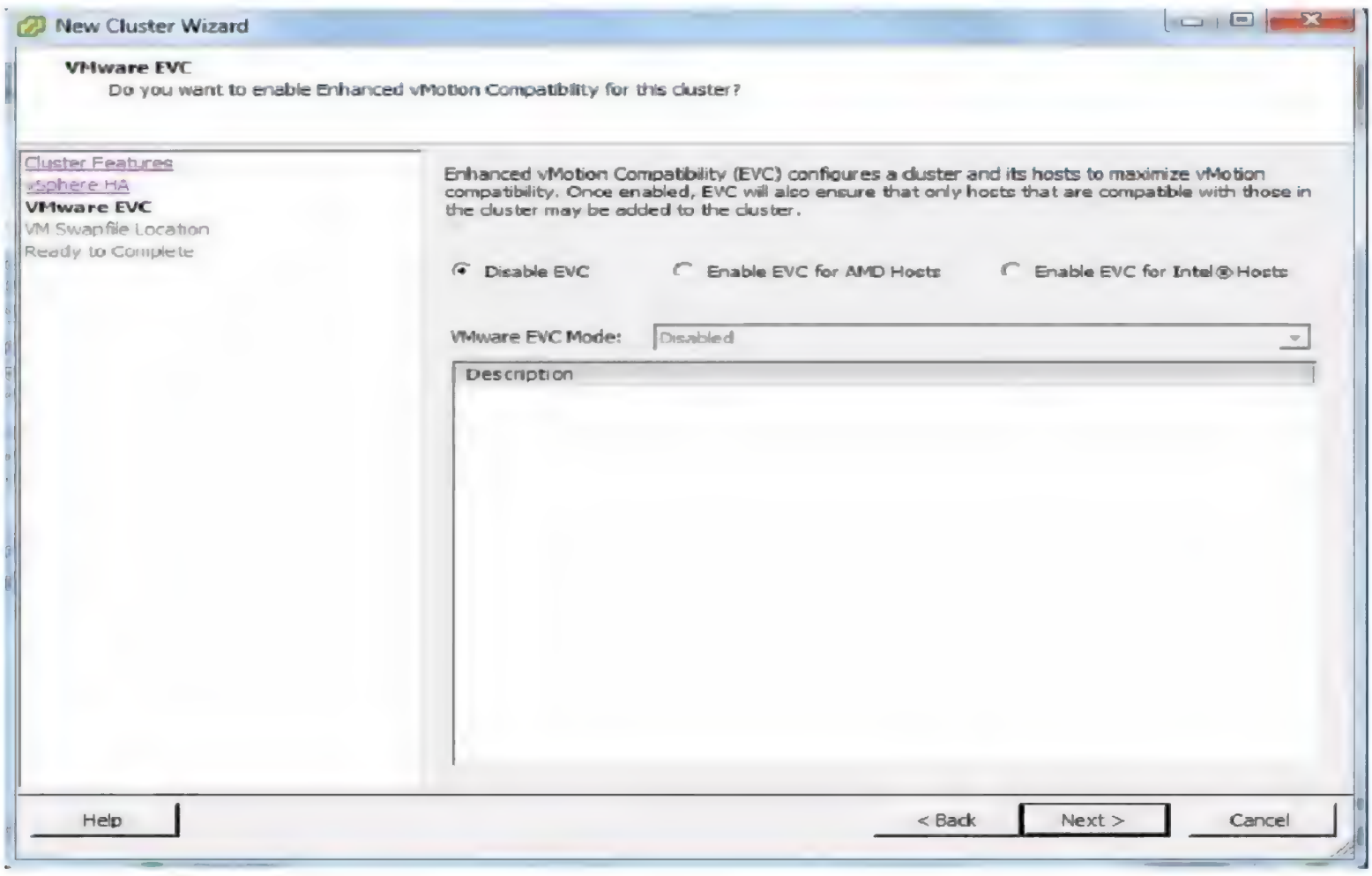
4. Select the Admission Control Policy - Next



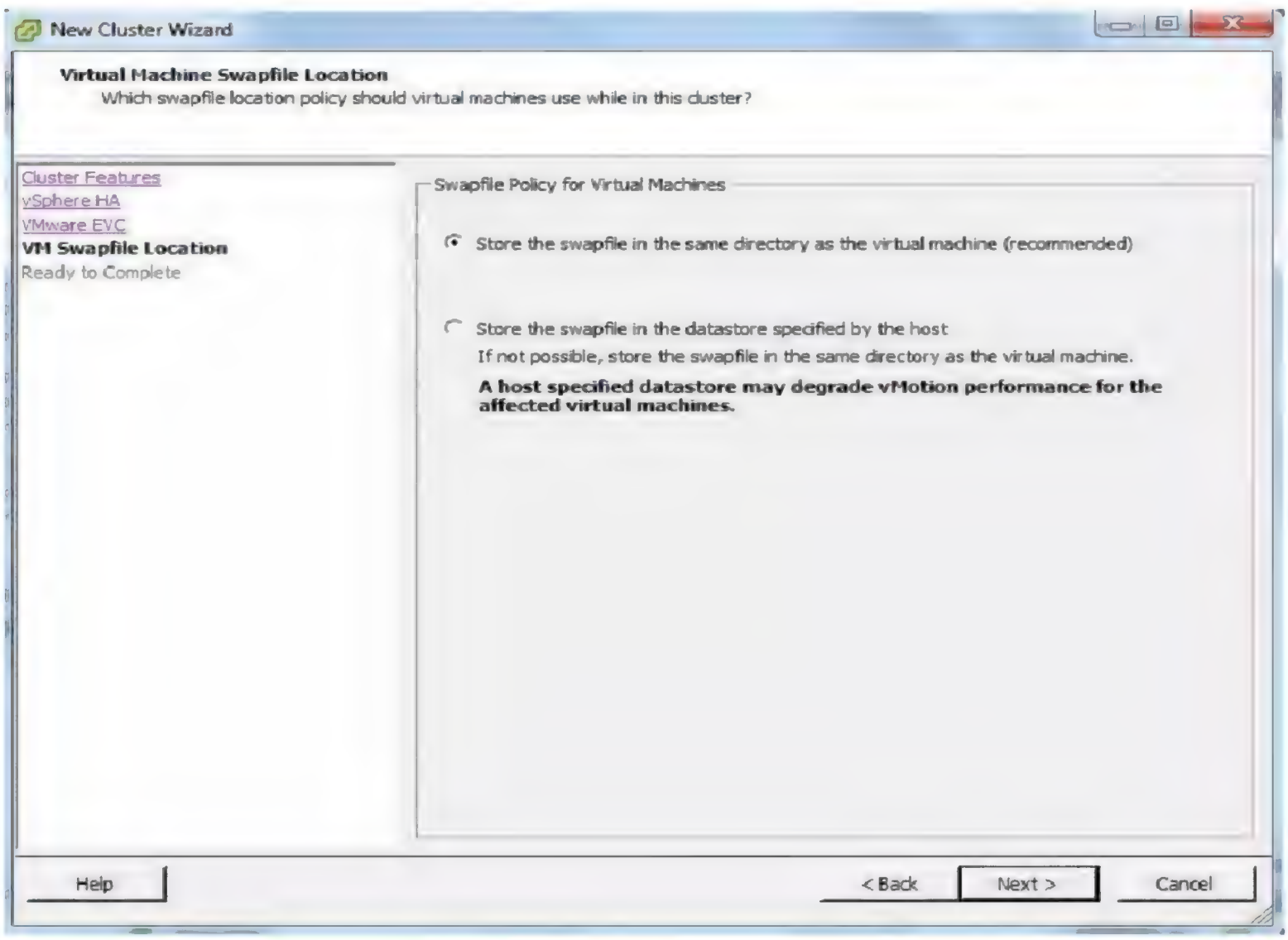
5. Select the default options, Next to continue



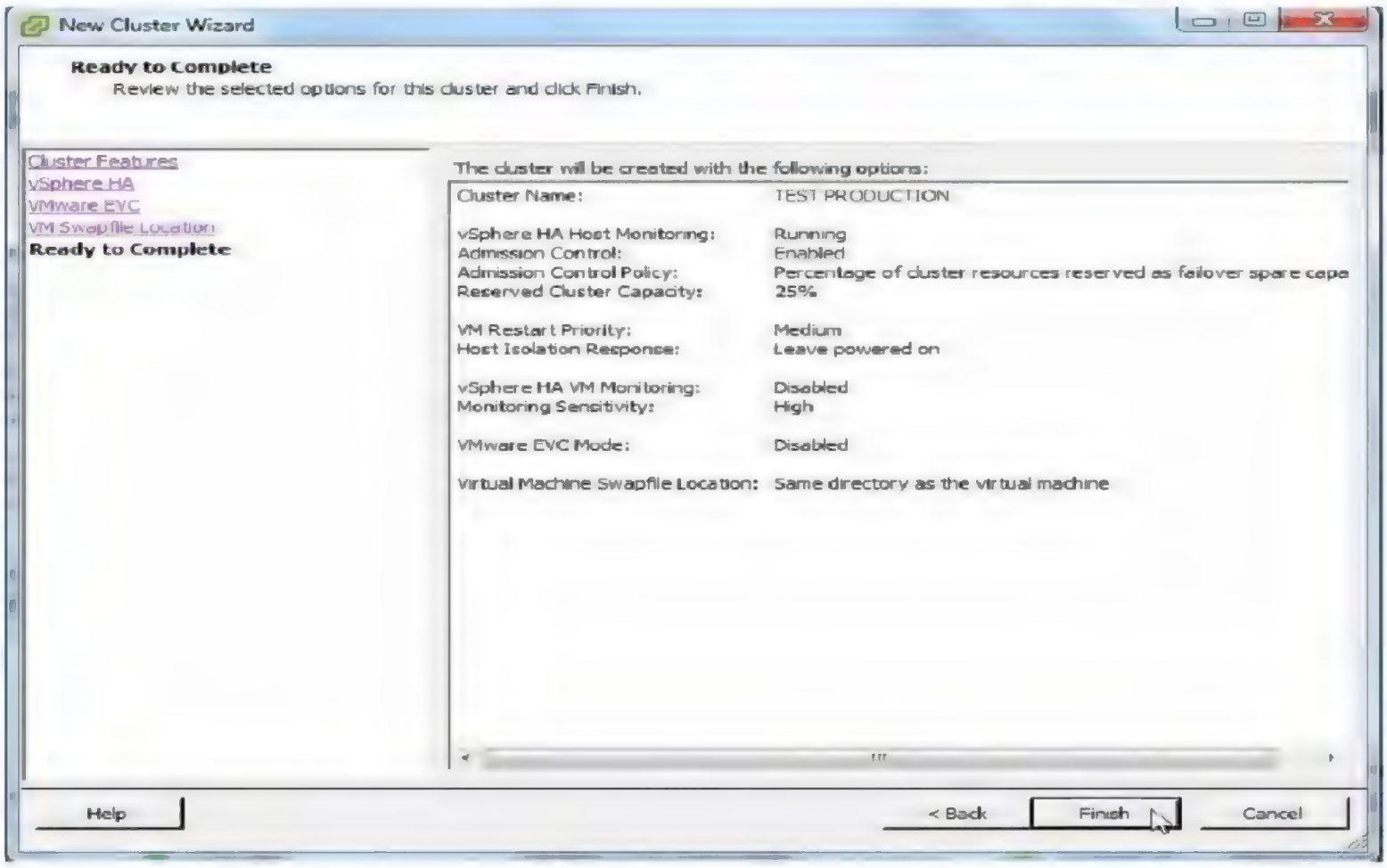
6. Select the default options unless you want to enable VM monitoring, Next



7. Select default option unless there is a requirement to Enable EVC, Next

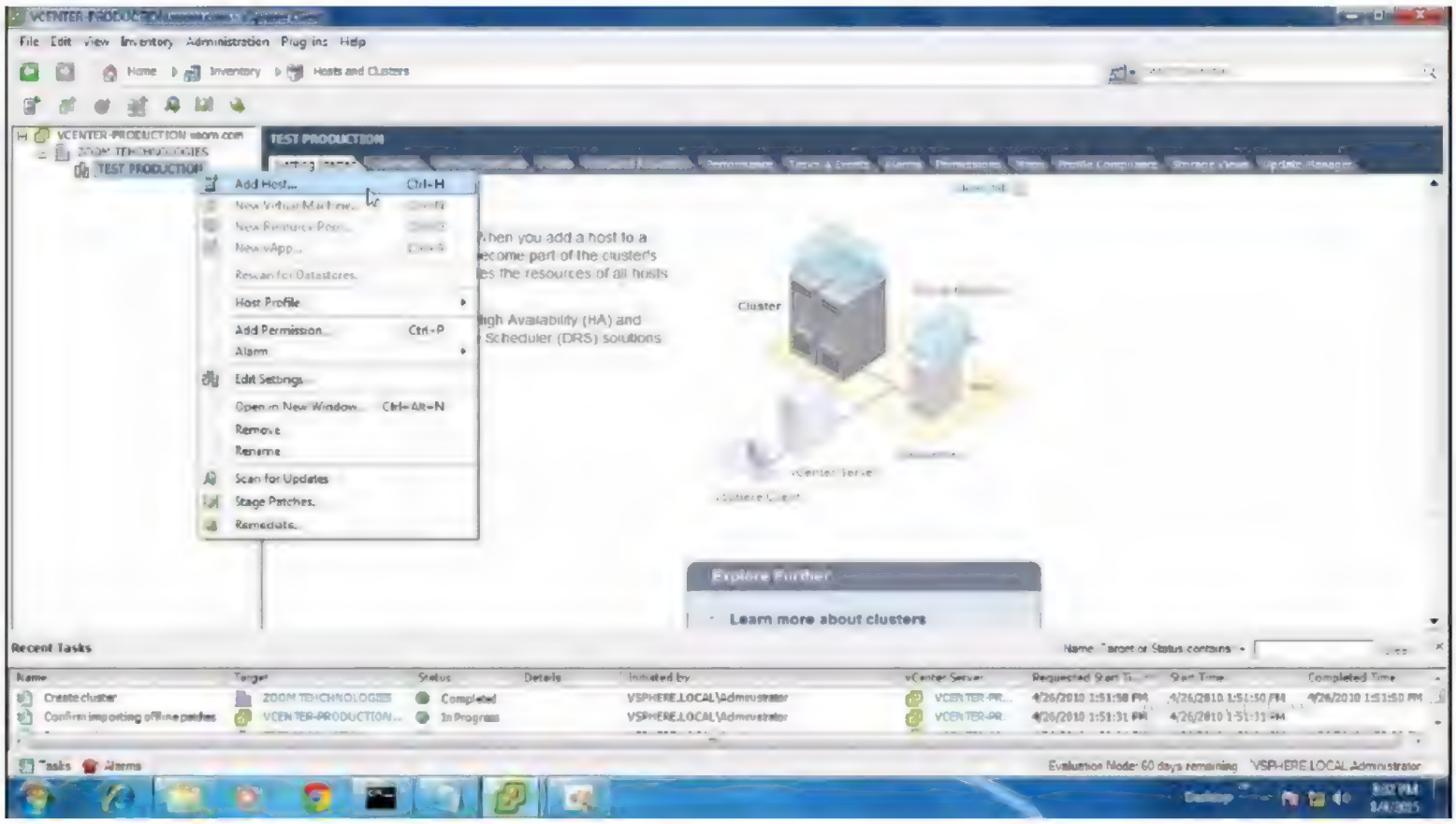


8. Select default swapfile policy, Next to continue



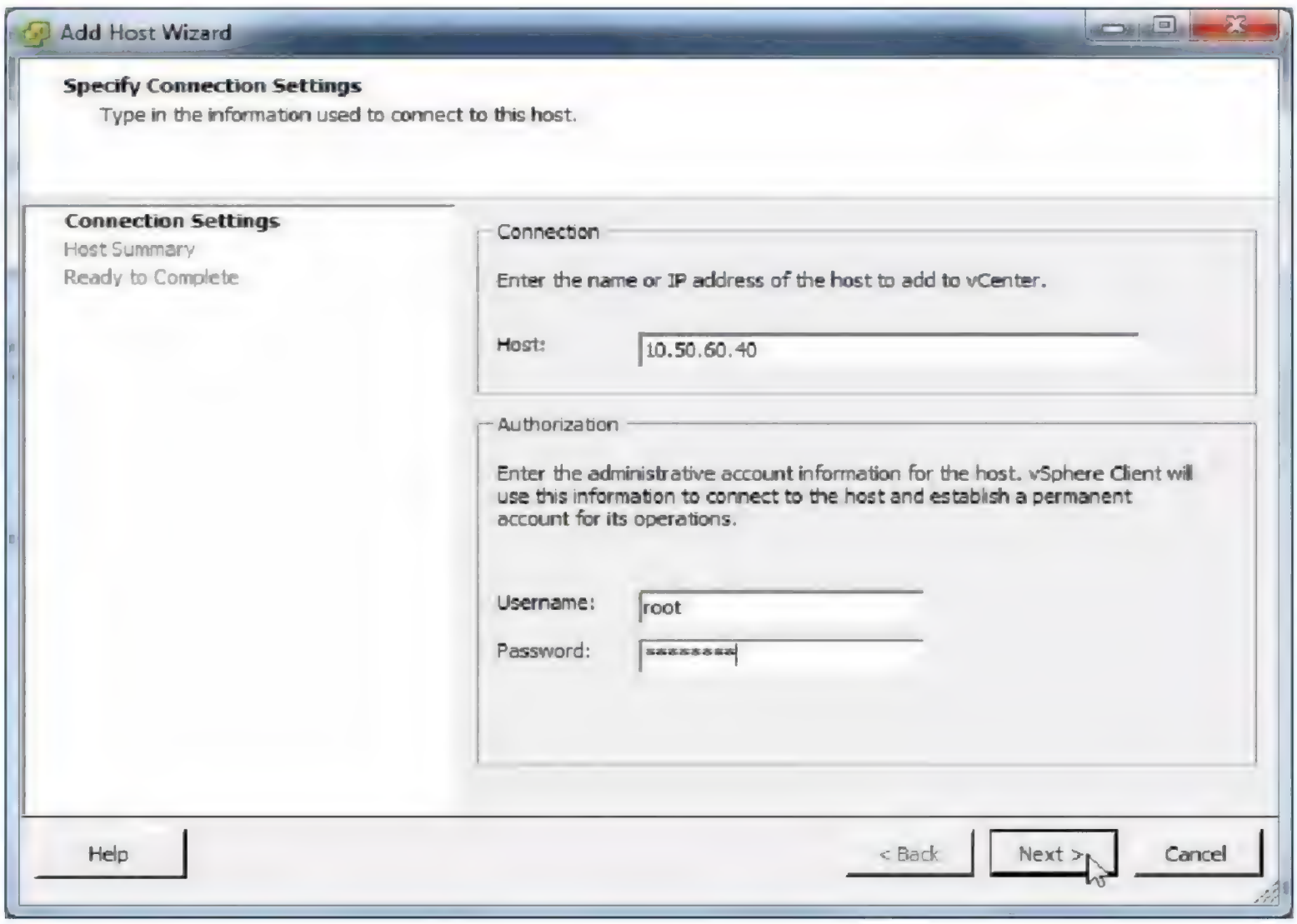
9. Finish to complete the creation of cluster

Adding Host to Cluster

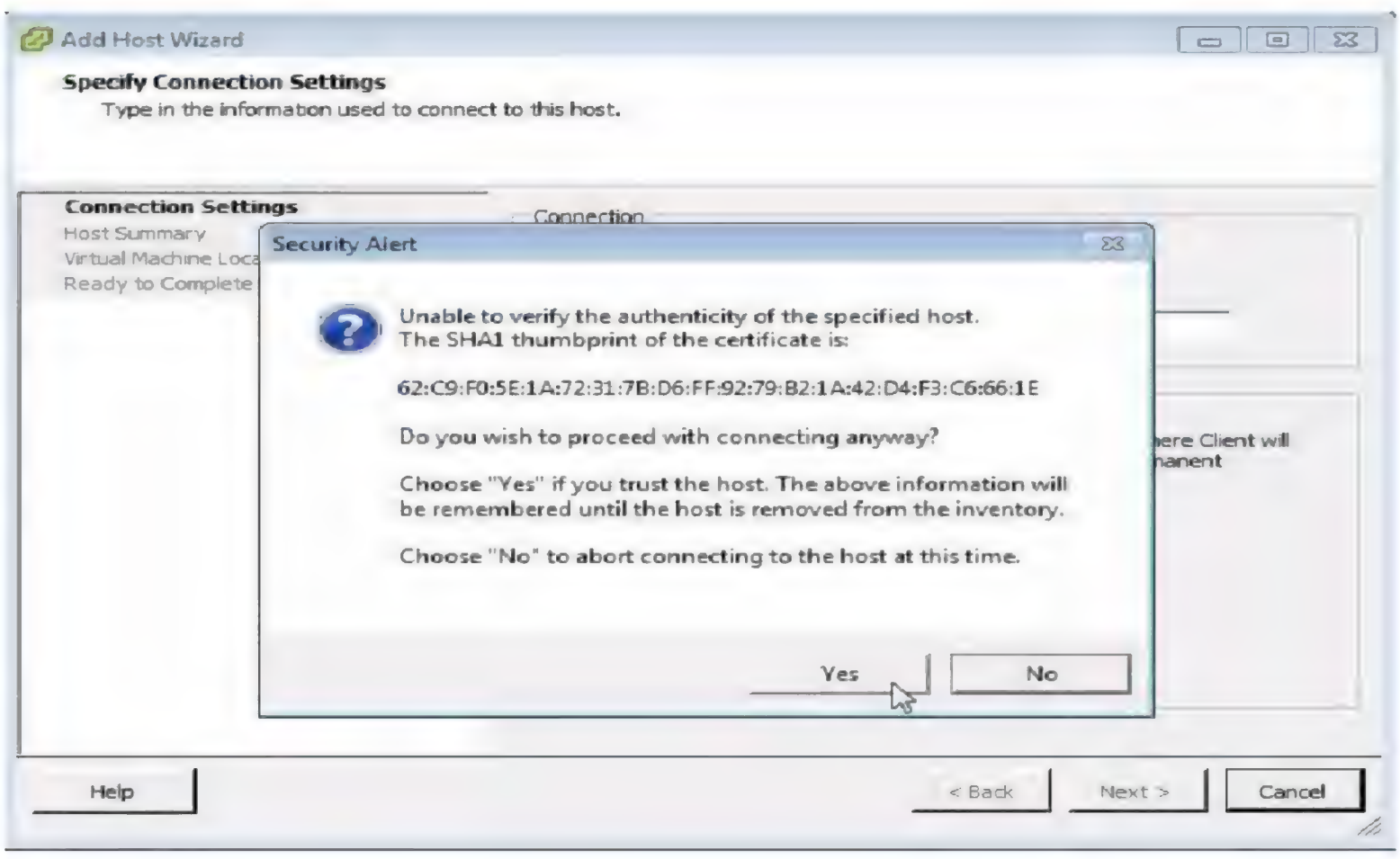


Steps:

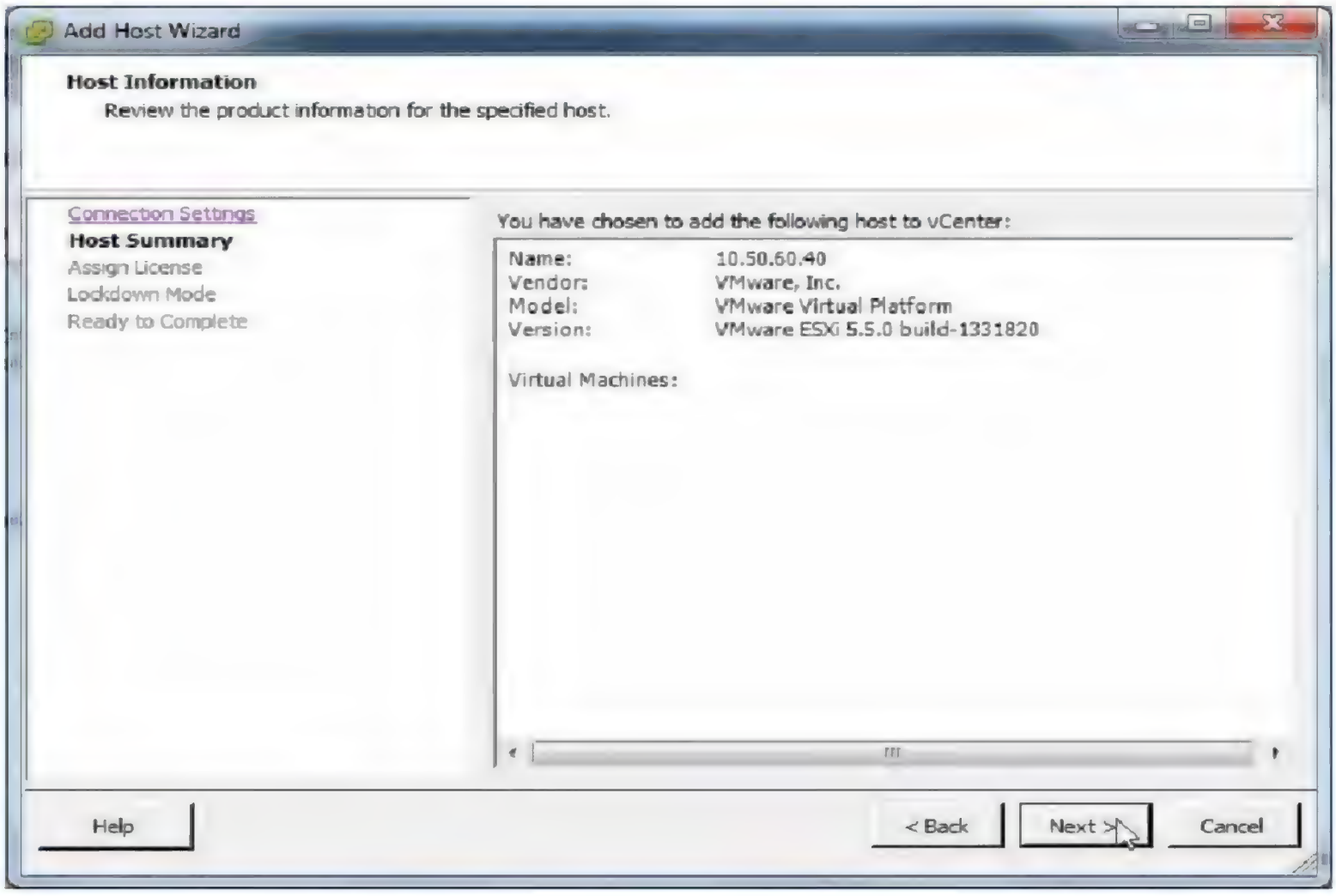
1. Right Click on Cluster - Add Host



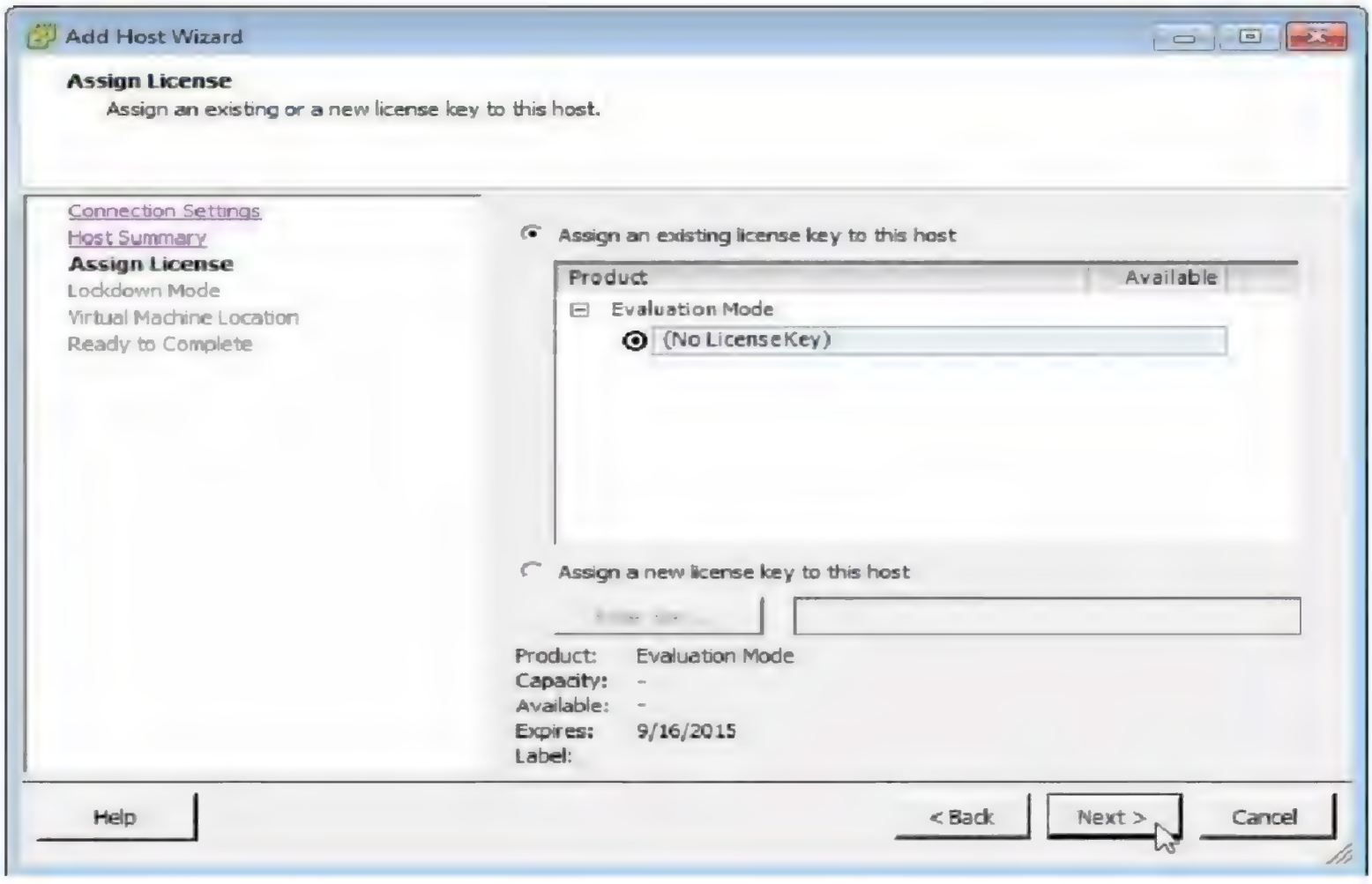
2. Enter the IP/Host Name of ESXi Host, Enter the credentials - Next



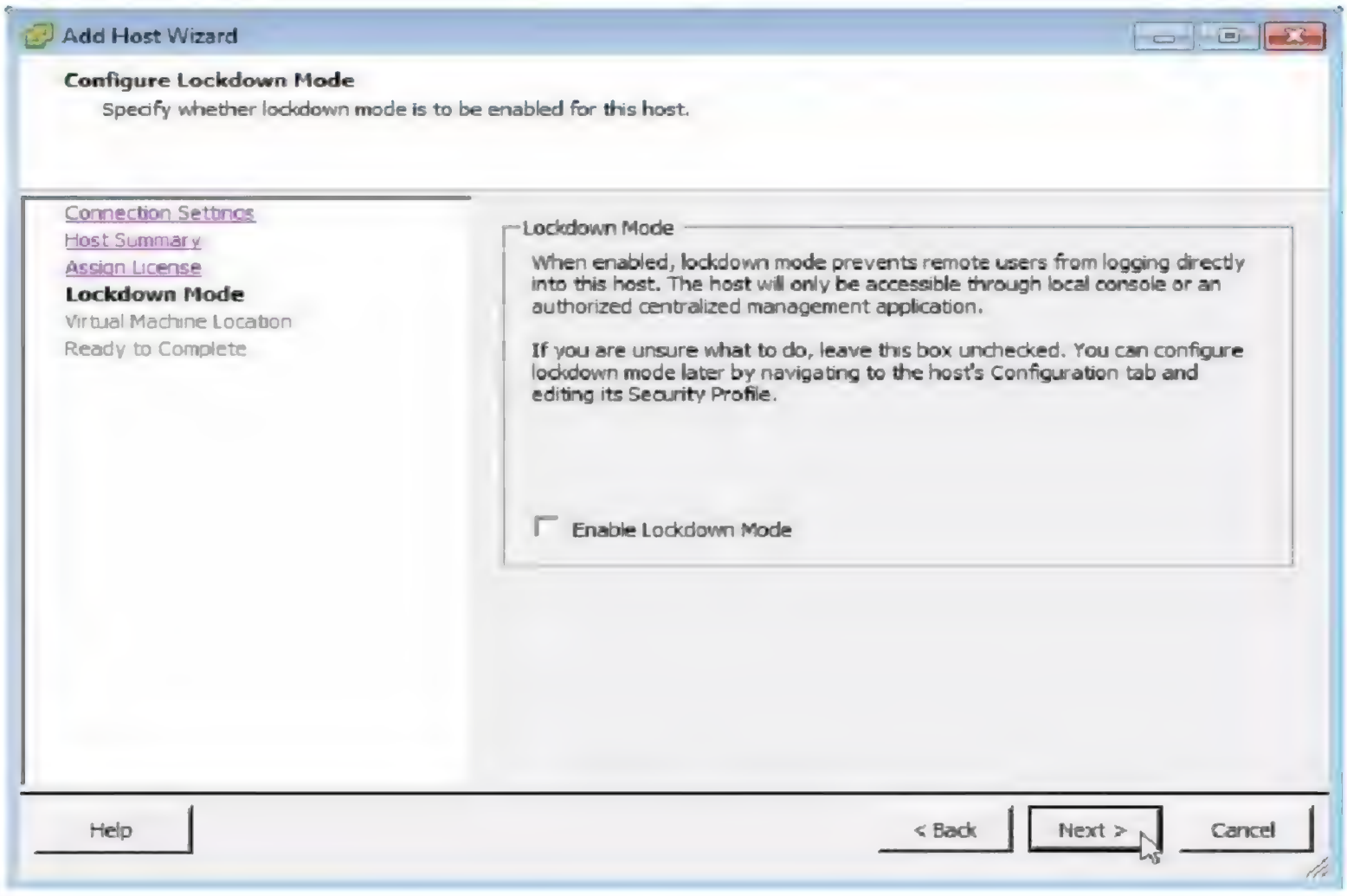
3. Yes to trust the host



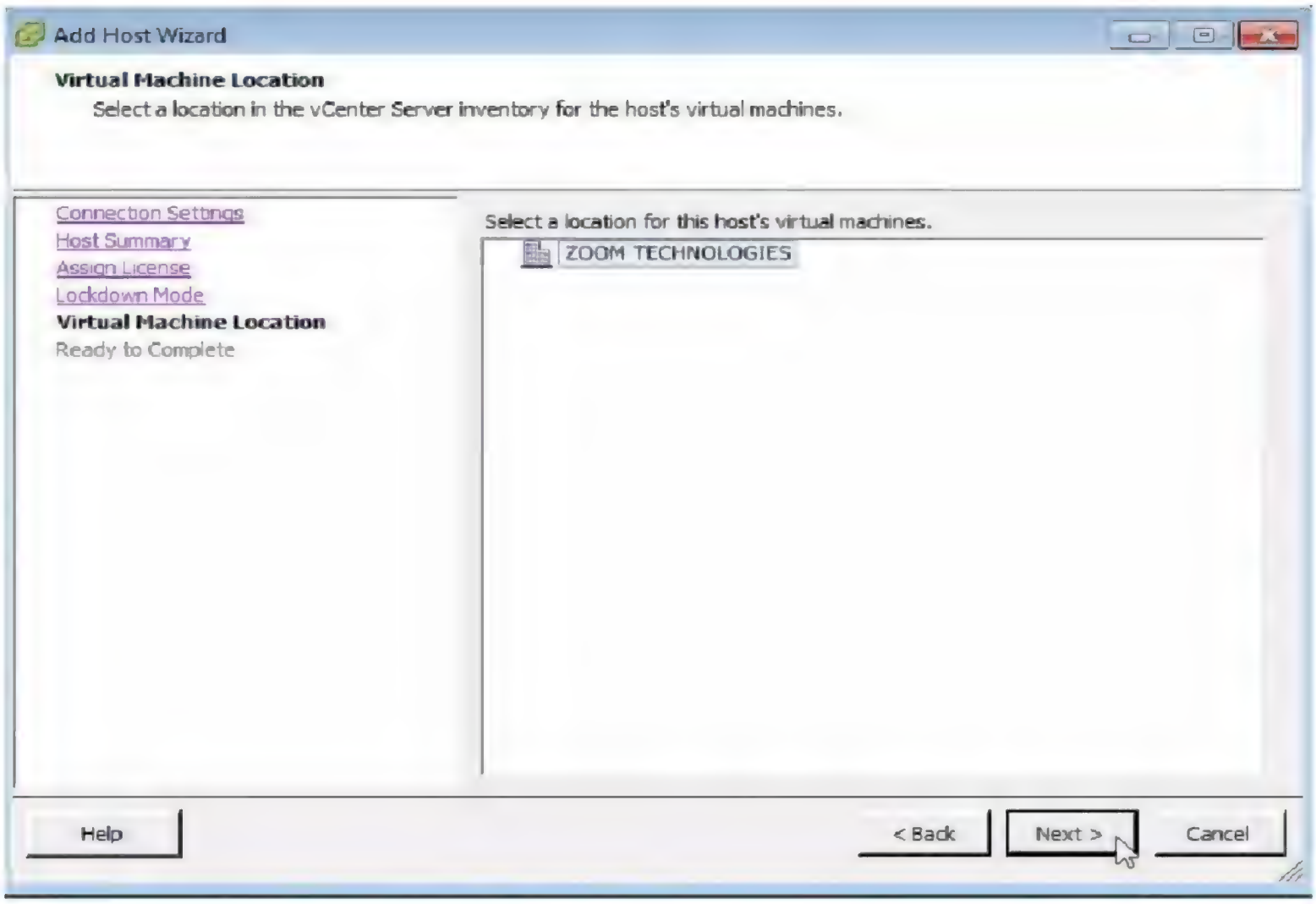
4. Next to continue



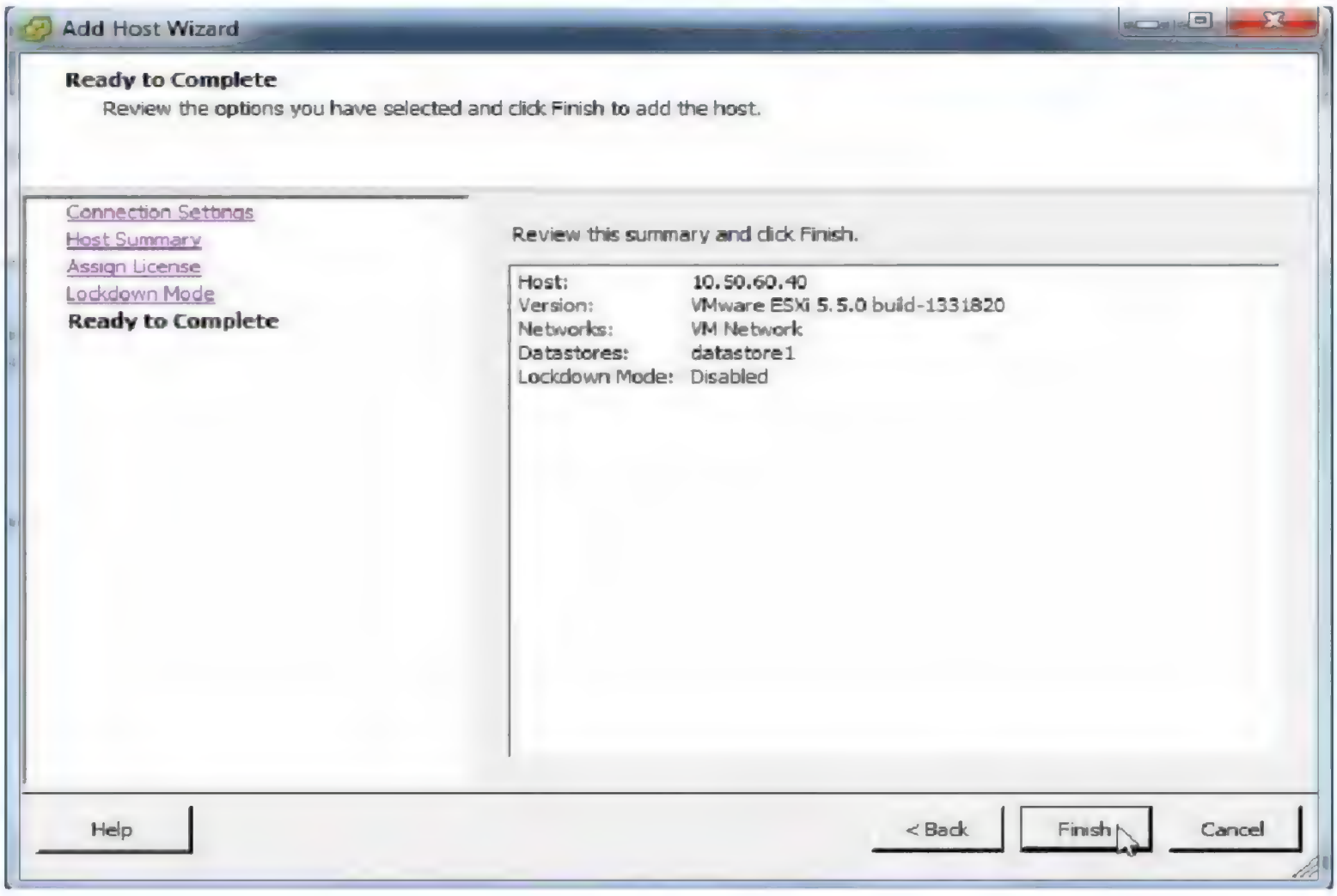
5. Assign a license key if any, Next to continue



6. Enable the lockdown mode if required, Next to continue



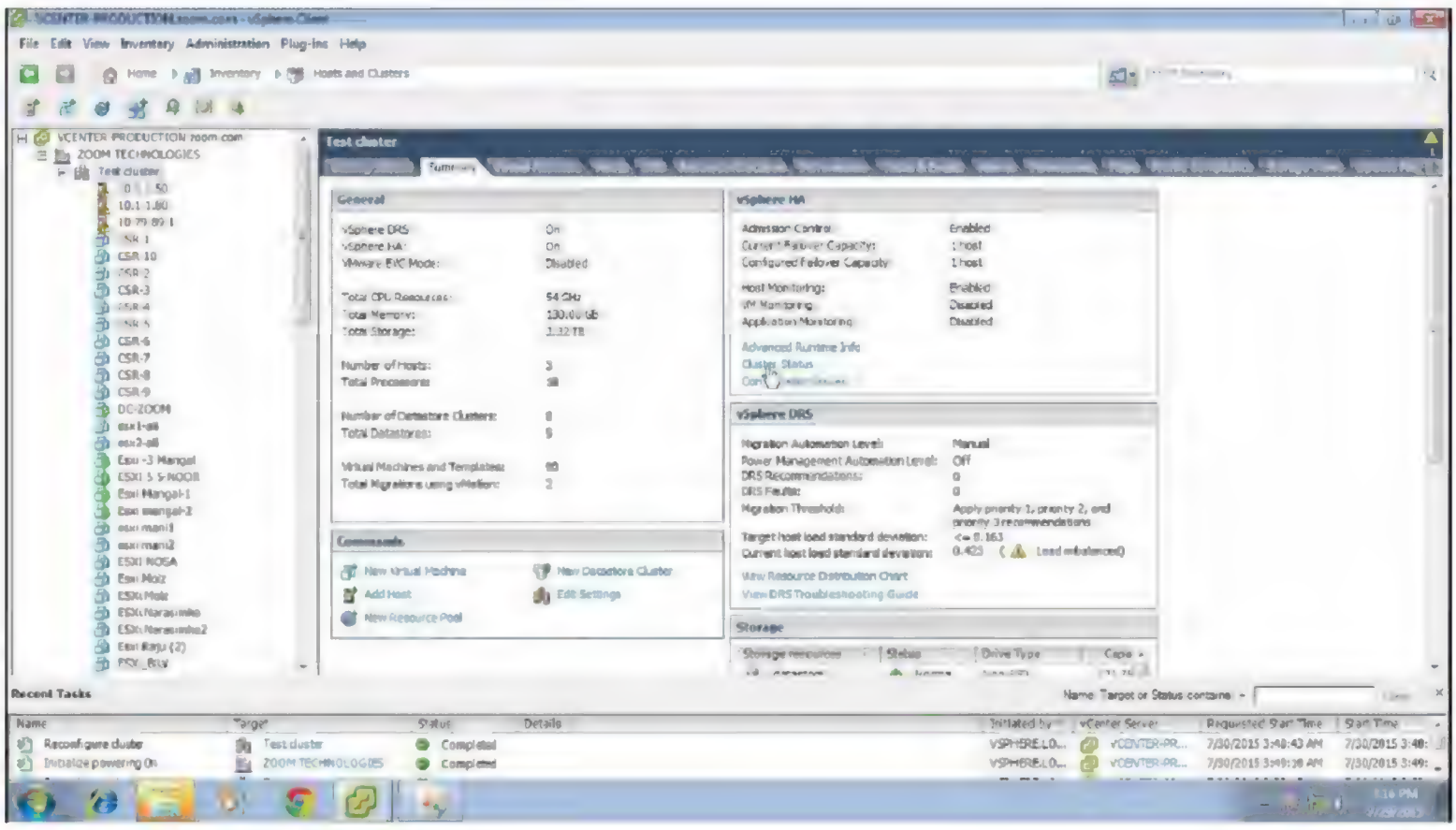
7. Next to continue



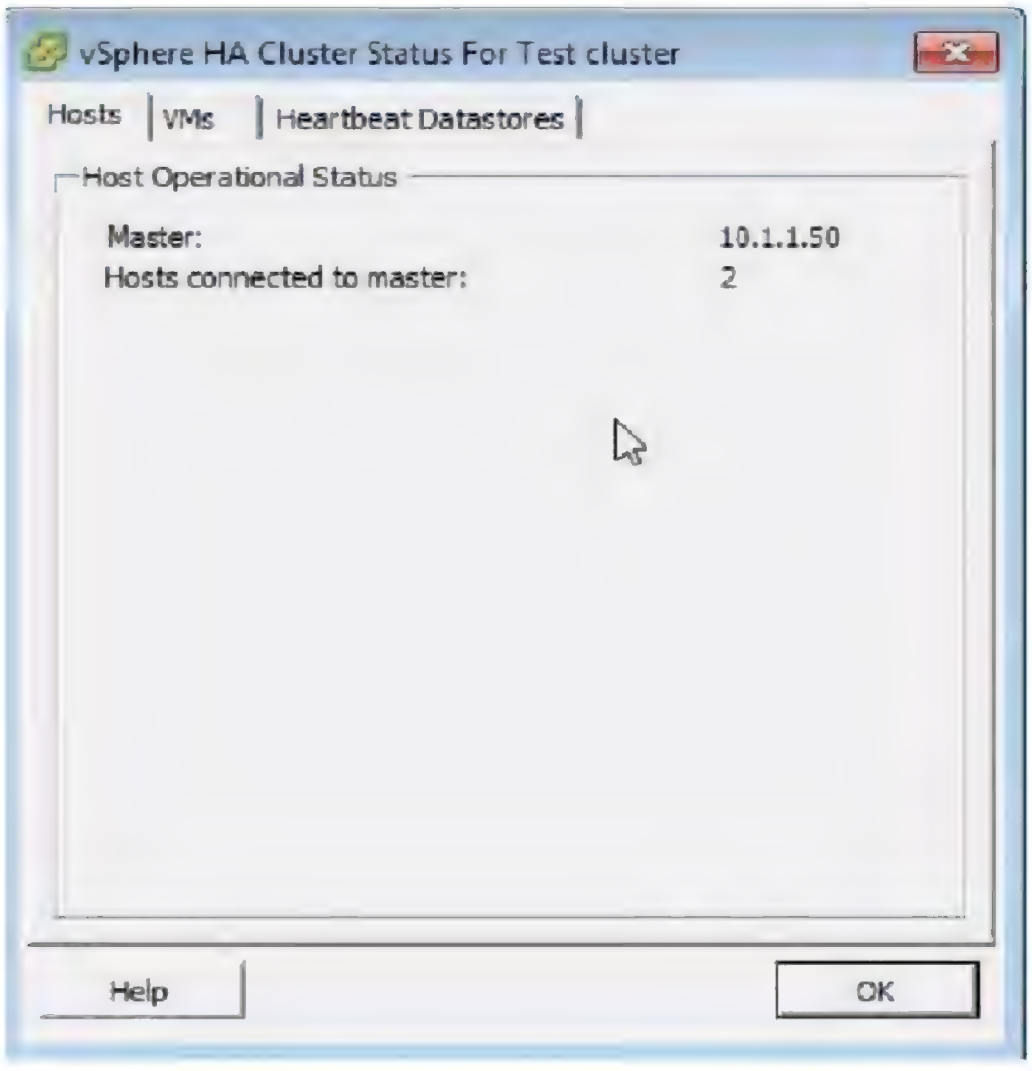
8. Finish to complete adding of ESXi Host to cluster

Similarly add the other Hosts to cluster

Verification:

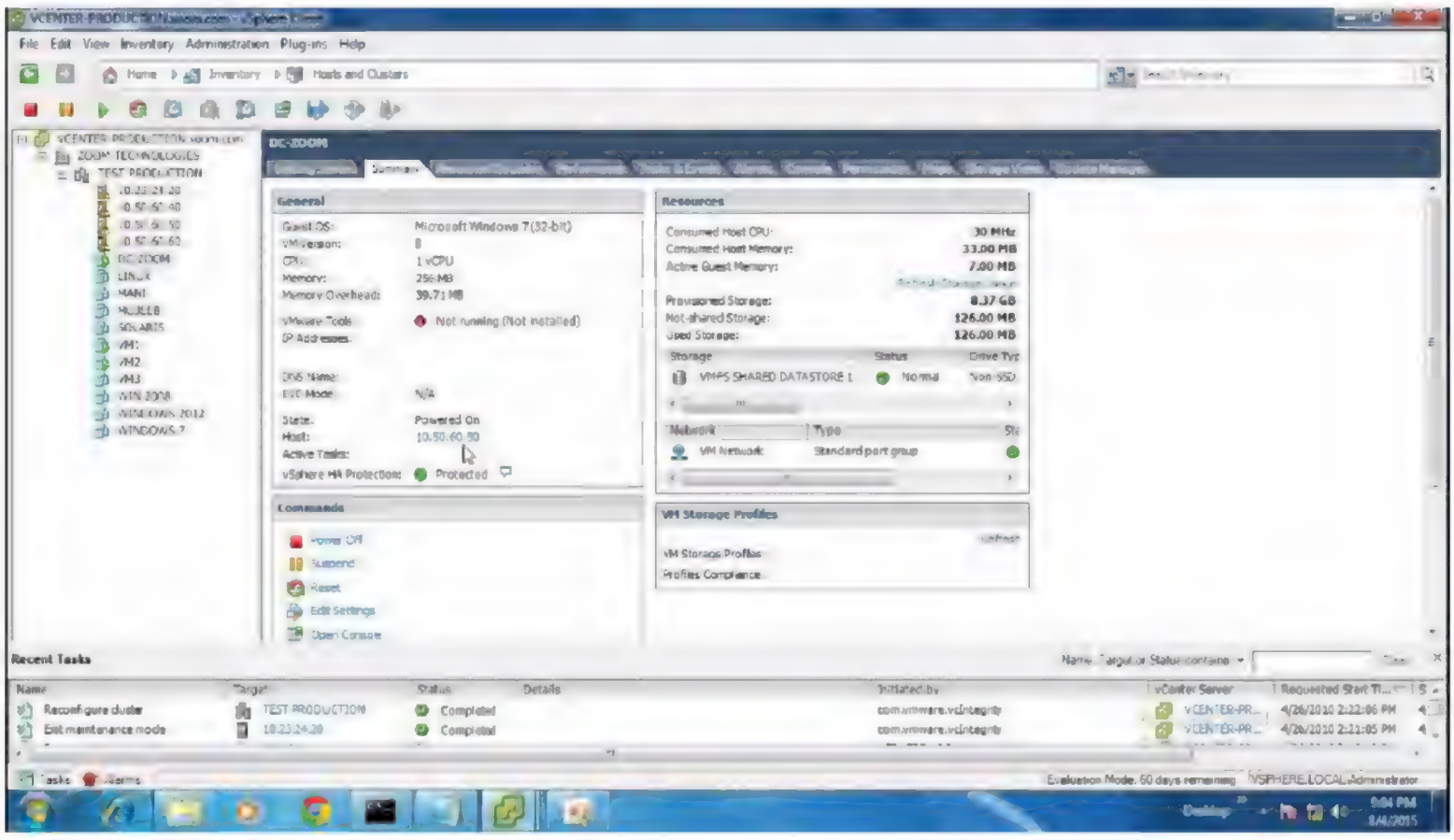


Click on Cluster Status

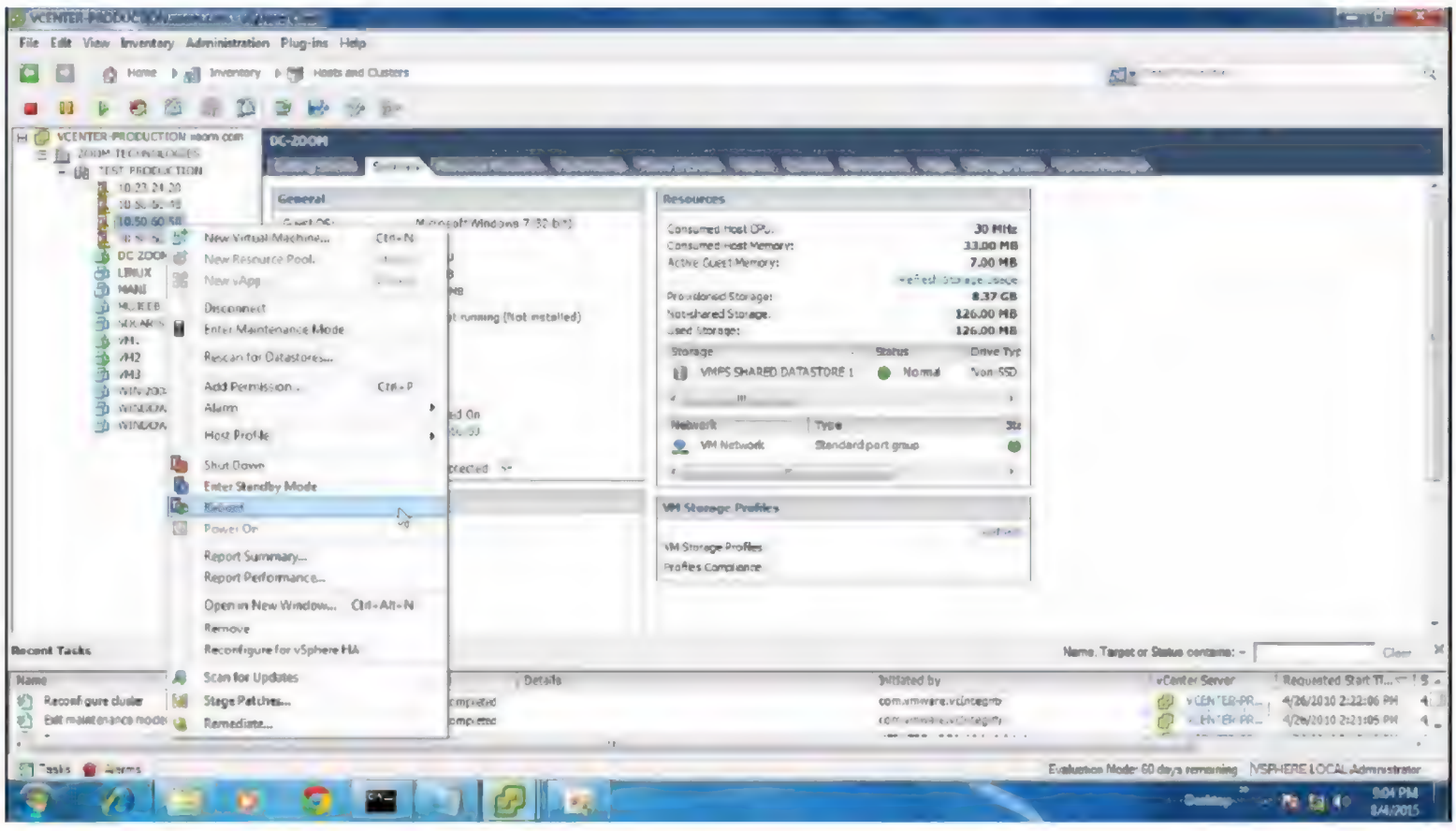


Observe which Host is Master Host - OK

Testing vSphere HA

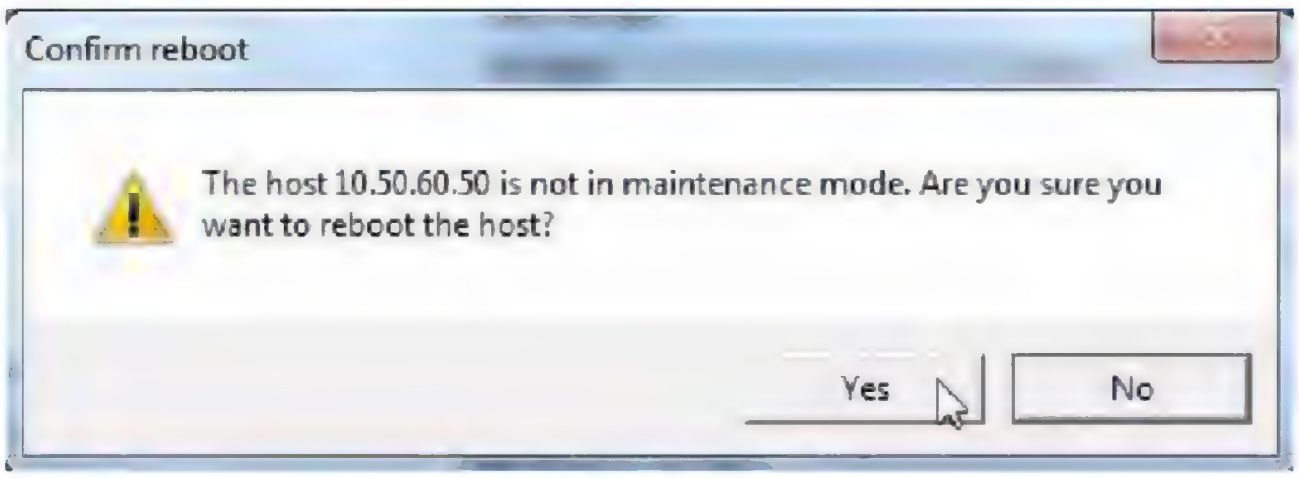


Observe the VM DC-Zoom is on 10.50.60.50

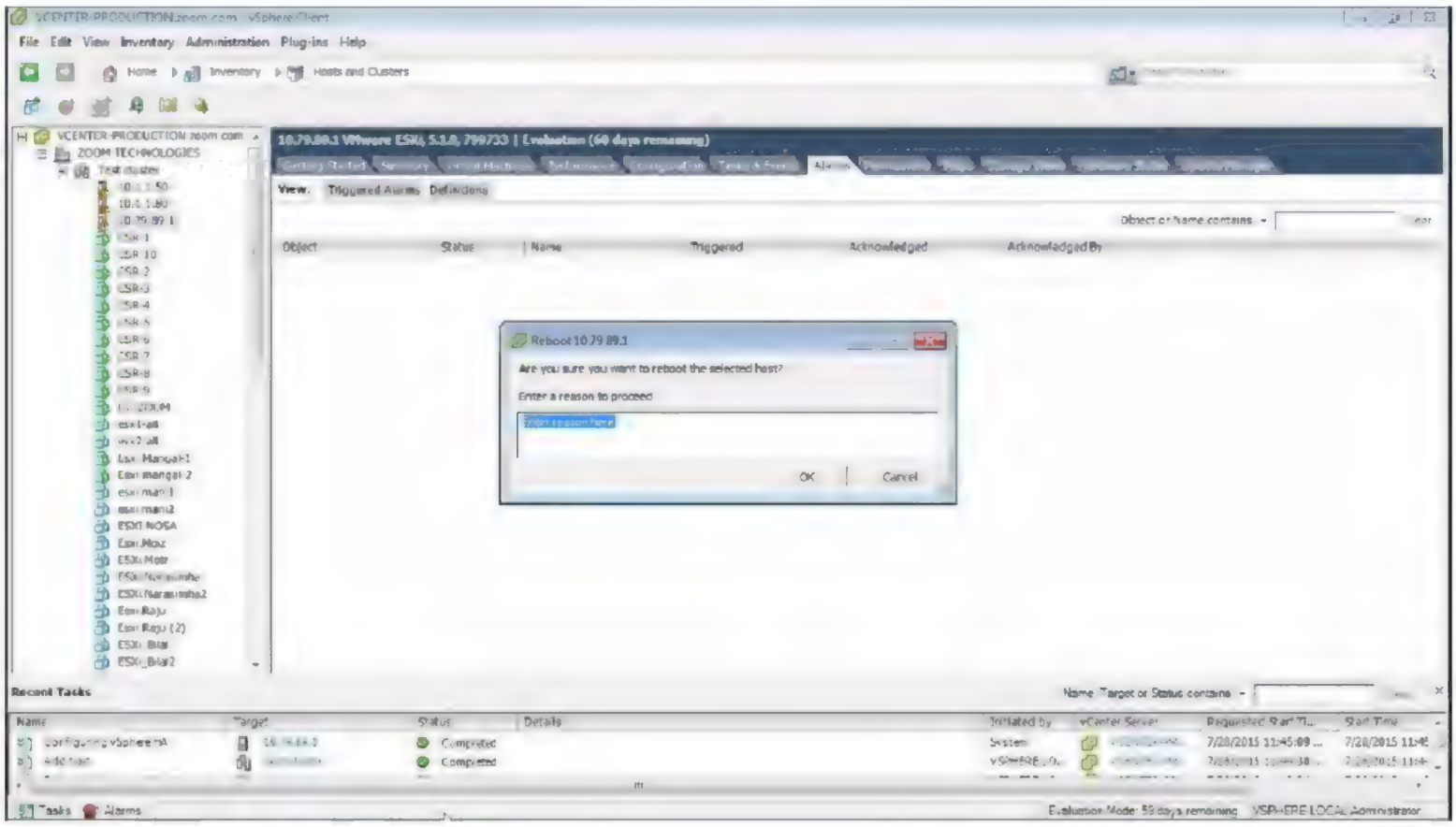


Steps:

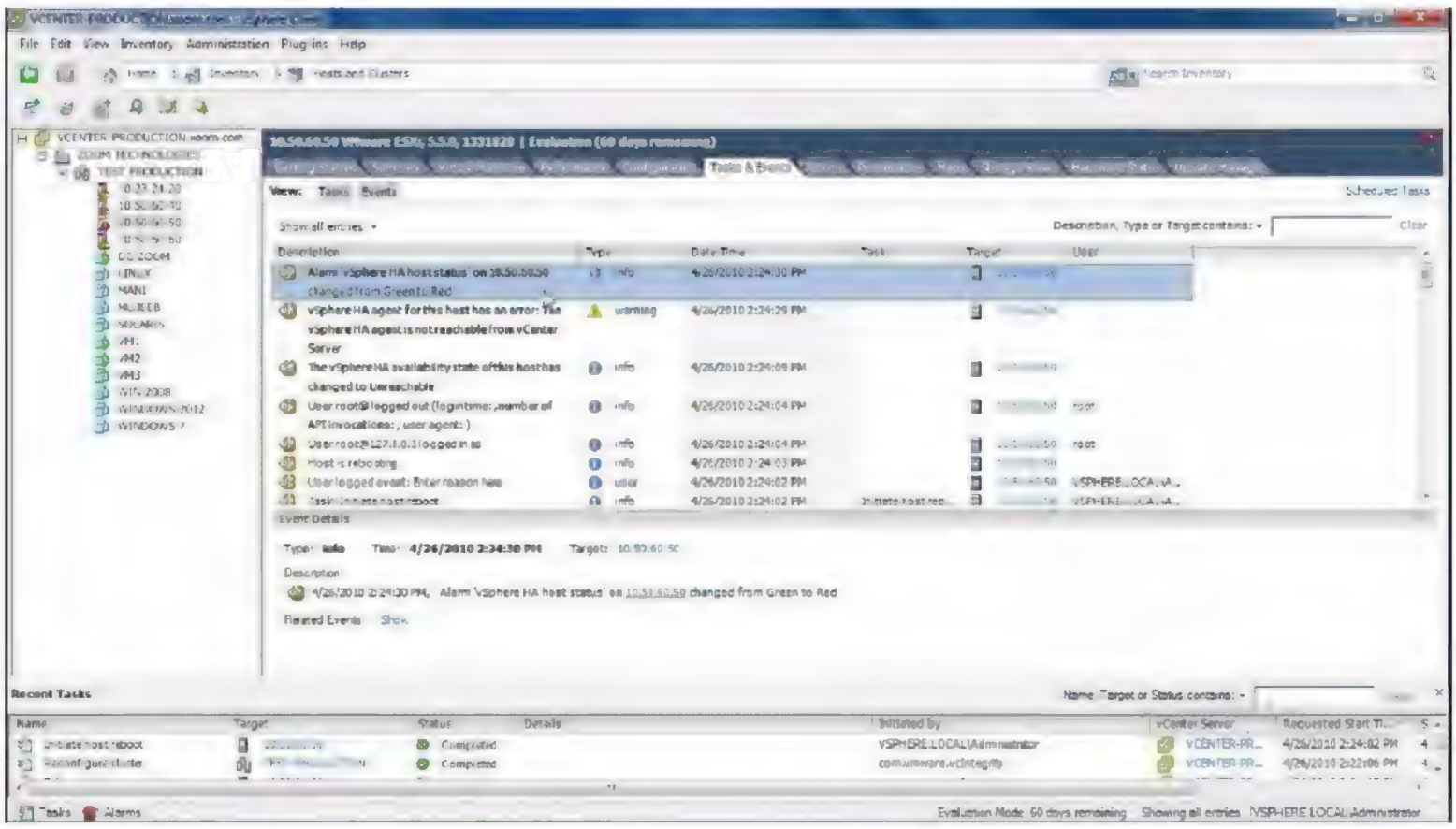
1. Right click Host – Reboot



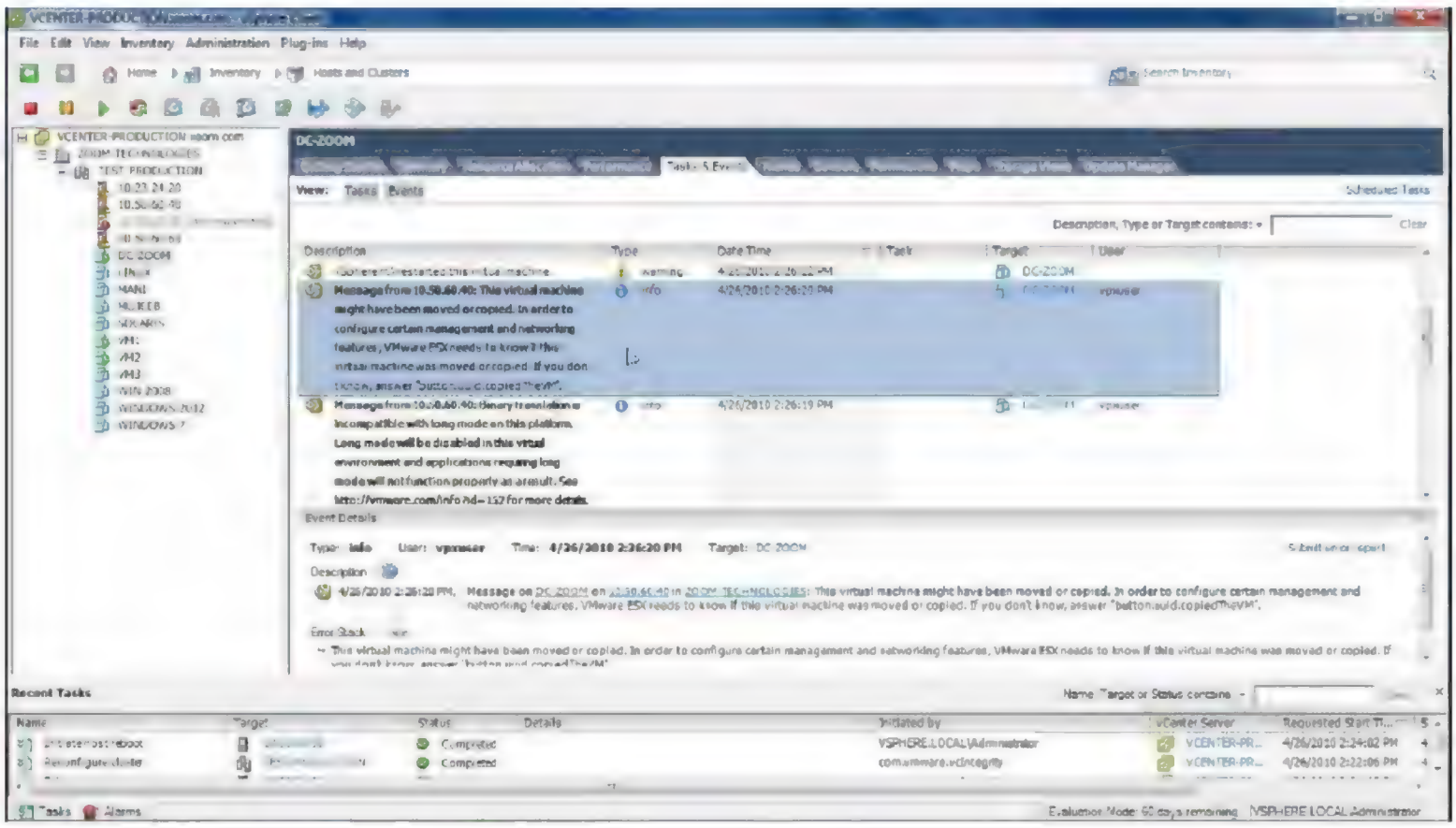
2. Yes to reboot the host



3. OK host will go for a reboot

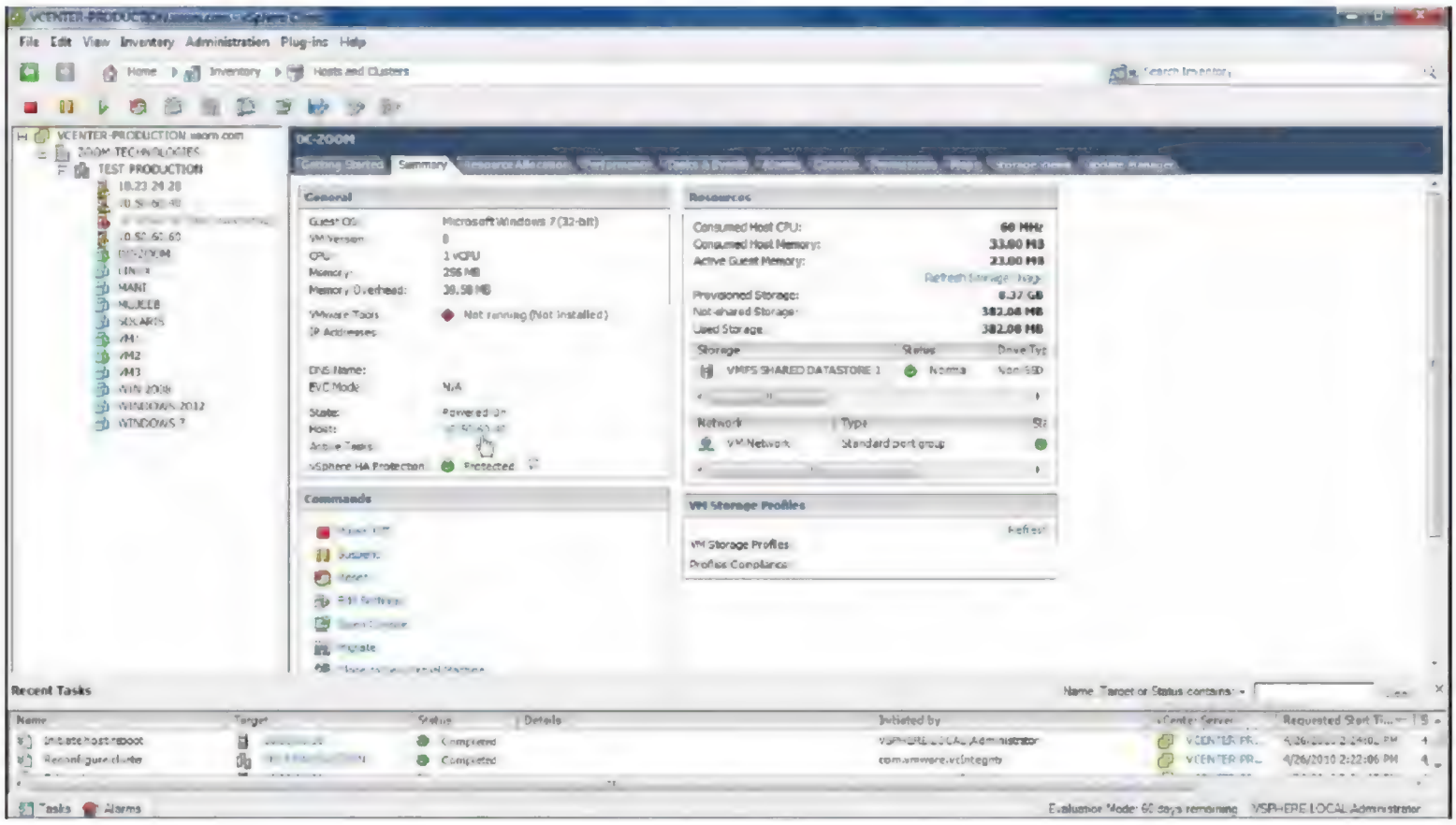


Observe the Events



Observe the event: VM DC-Zoom restarted on Host 10.50.60.40

Verification:



Observe VM DC-Zoom is now running on 10.50.60.40

vSphere HA successfully restarted the VM within 3 minutes

LAB-19: vSPHERE DISTRIBUTED RESOURCE SCHEDULER

Objective:

To configuring vSphere DRS cluster to balance computing capacity

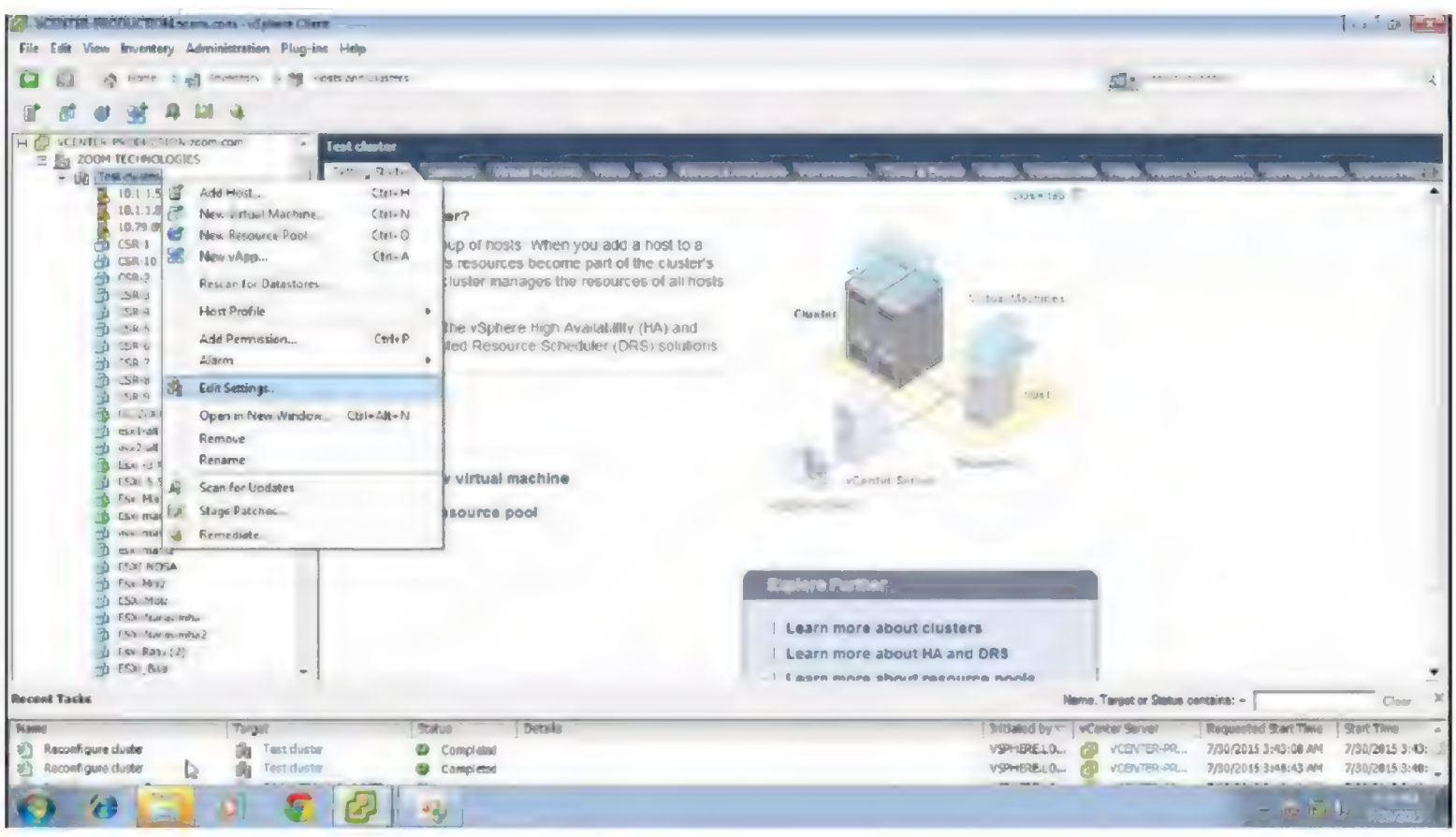
Prerequisites:

vCenter Server

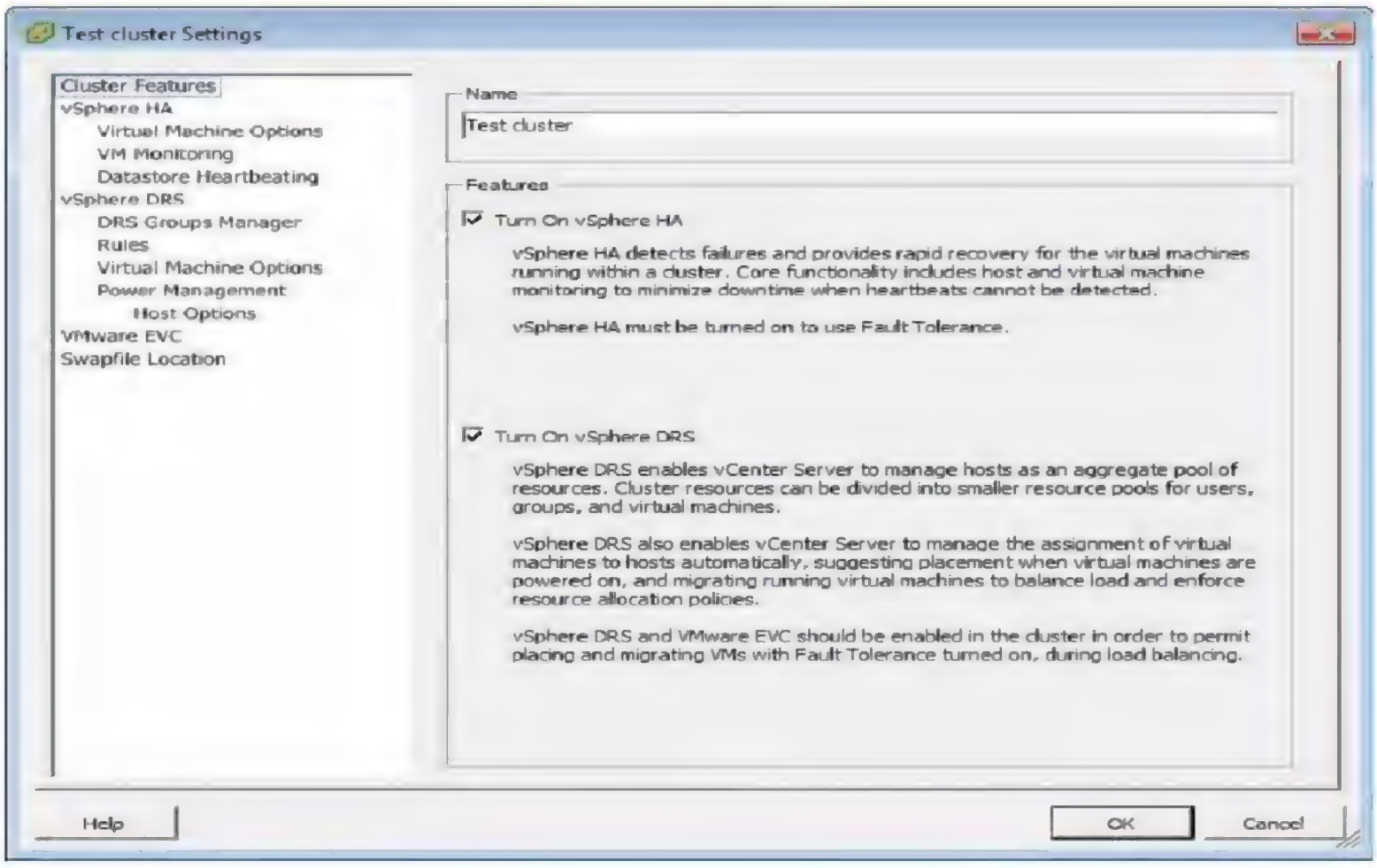
Tasks:

- Configure vSphere DRS
- Test vSphere DRS

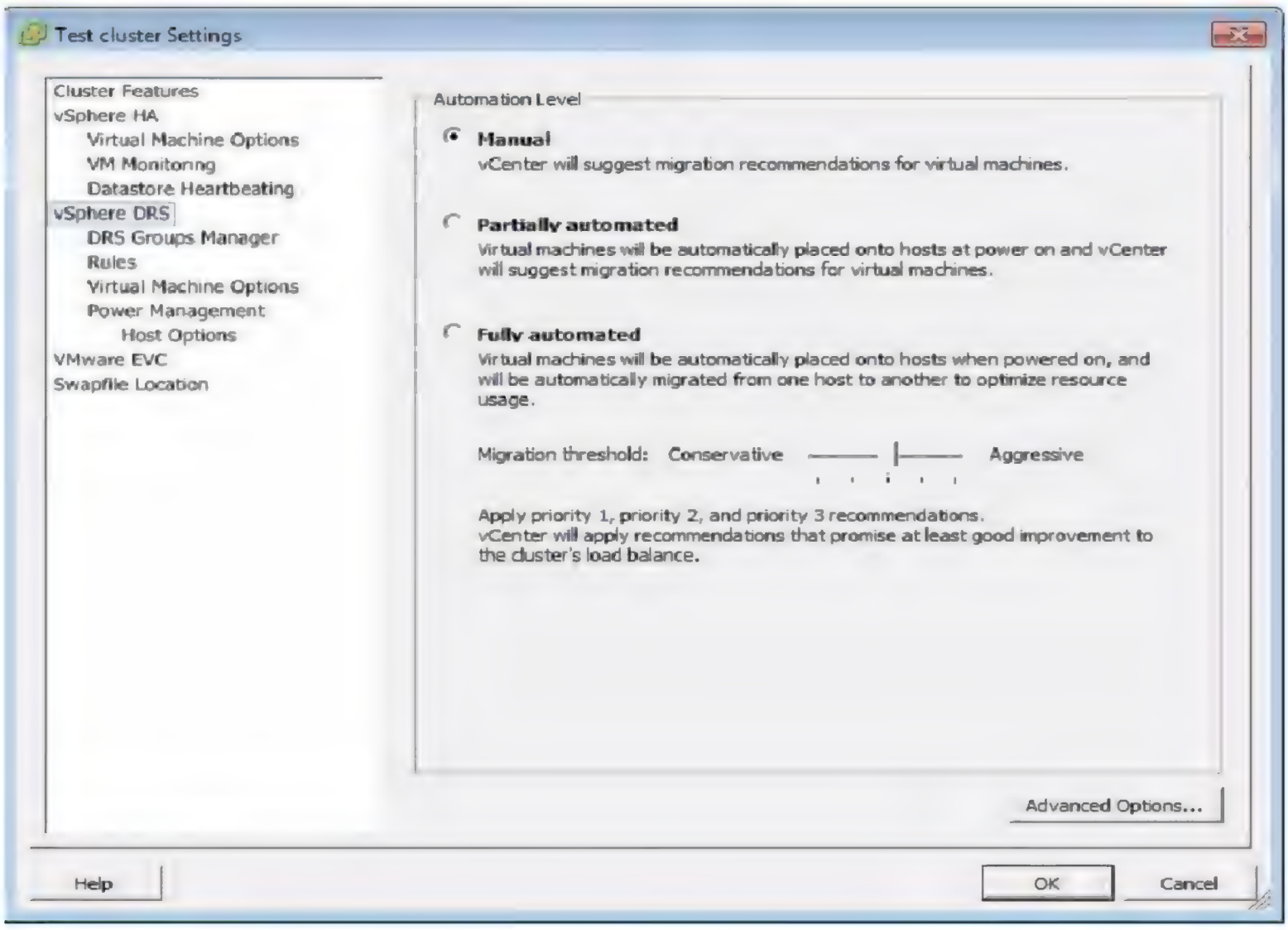
Steps:



1. Right Click the Cluster - Edit Settings



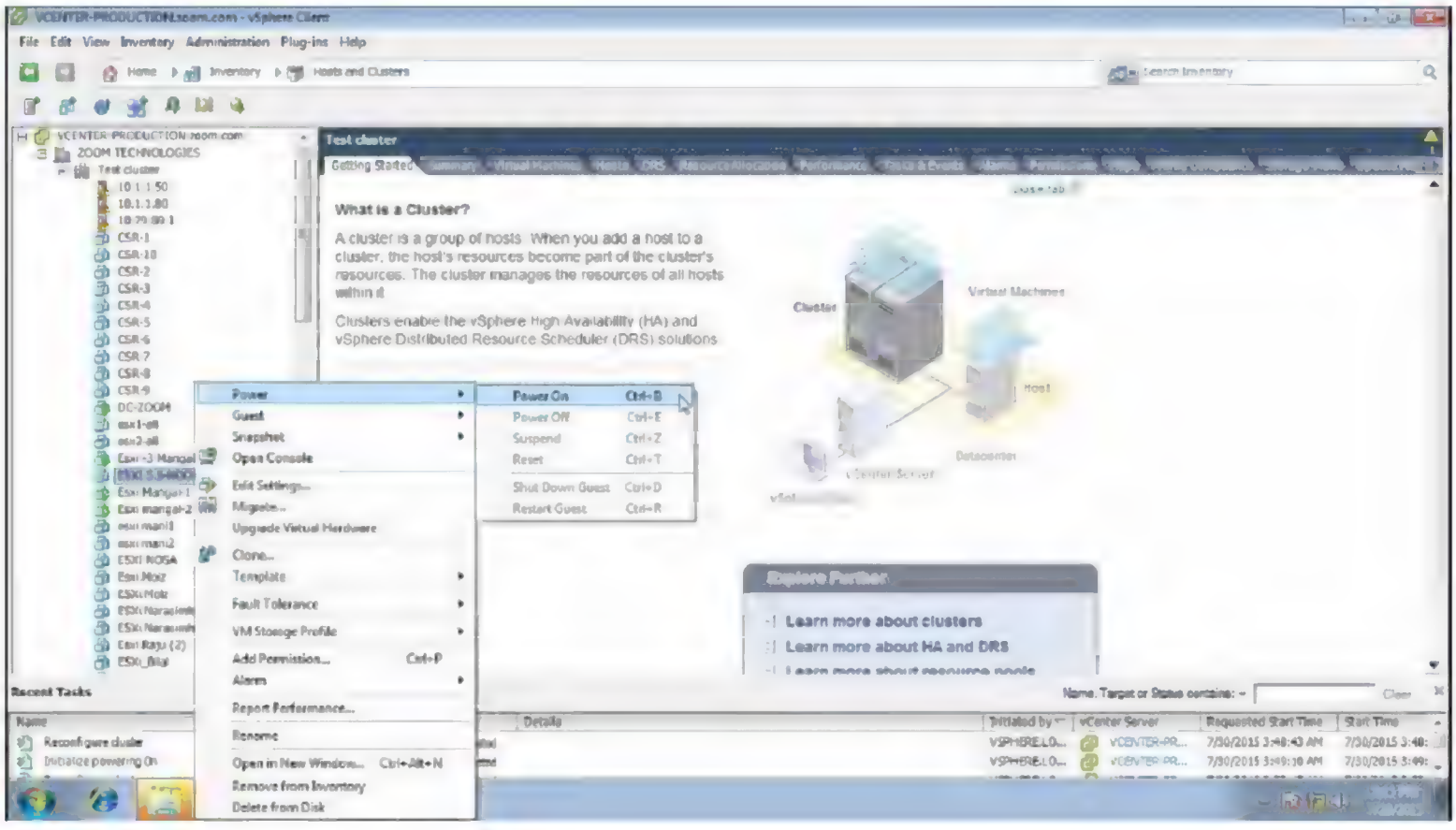
2. Select Turn on vSphere DRS



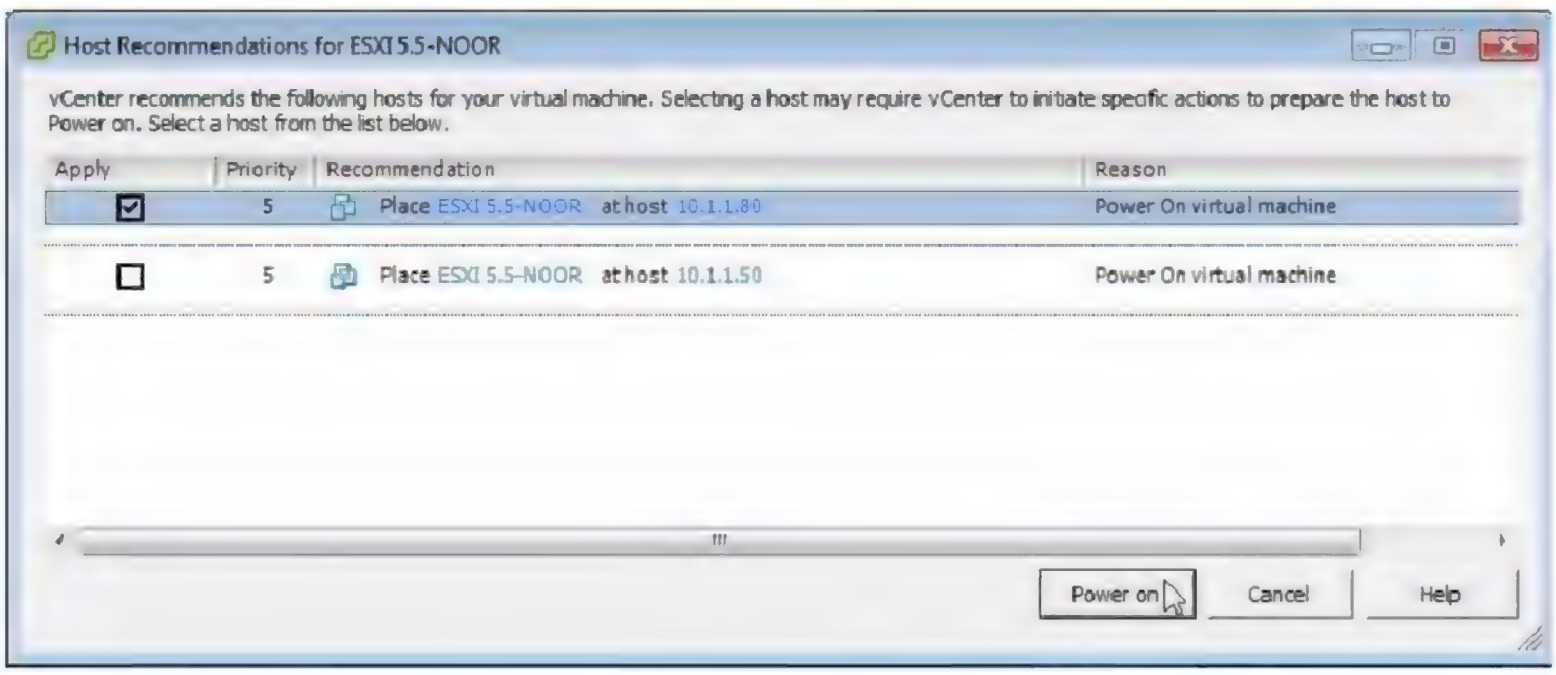
3. Click on vSphere DRS - Select Automation Level - OK

Testing vSphere DRS

Steps:

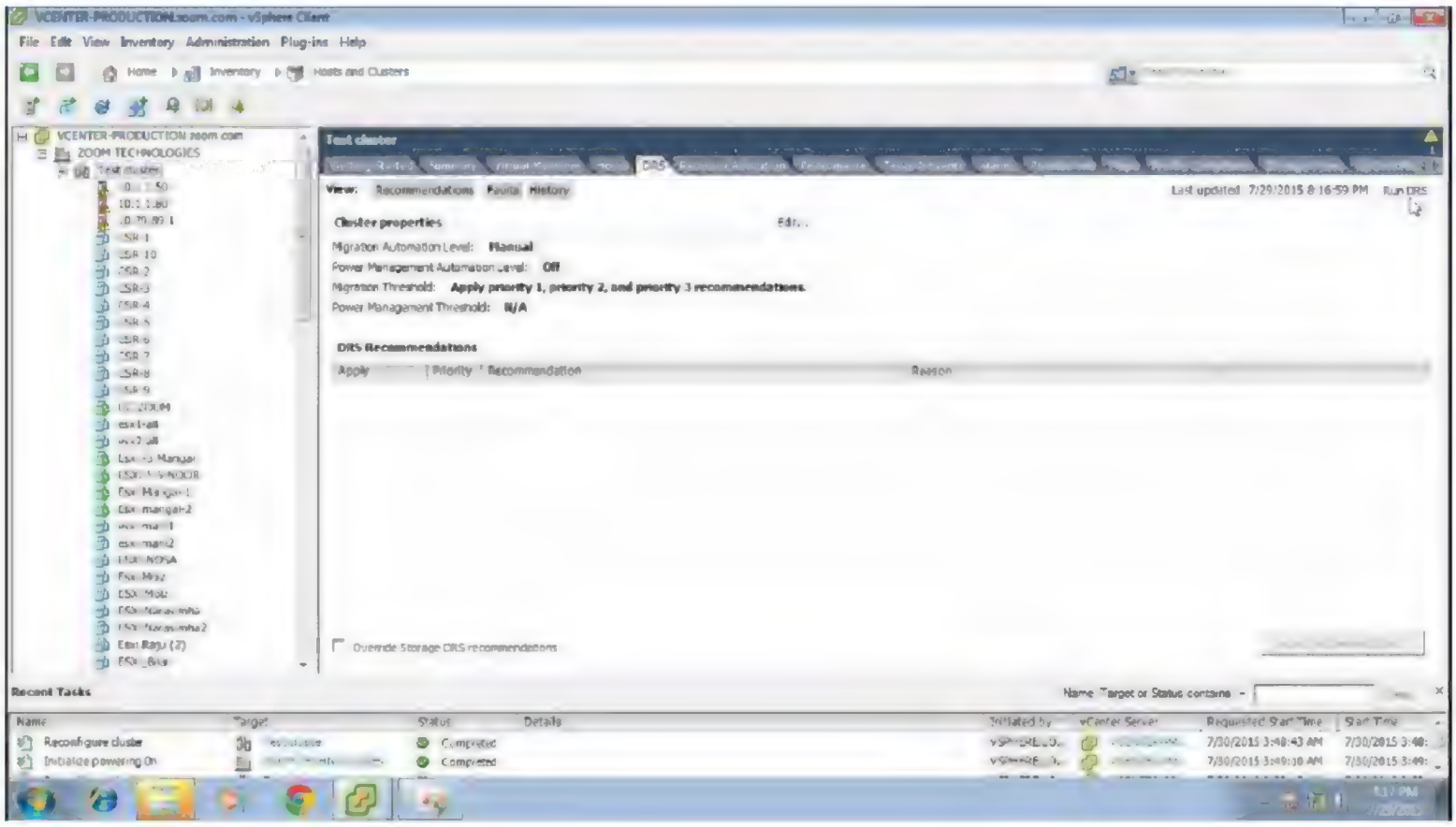


1. Right Click the VM - Power - Power On

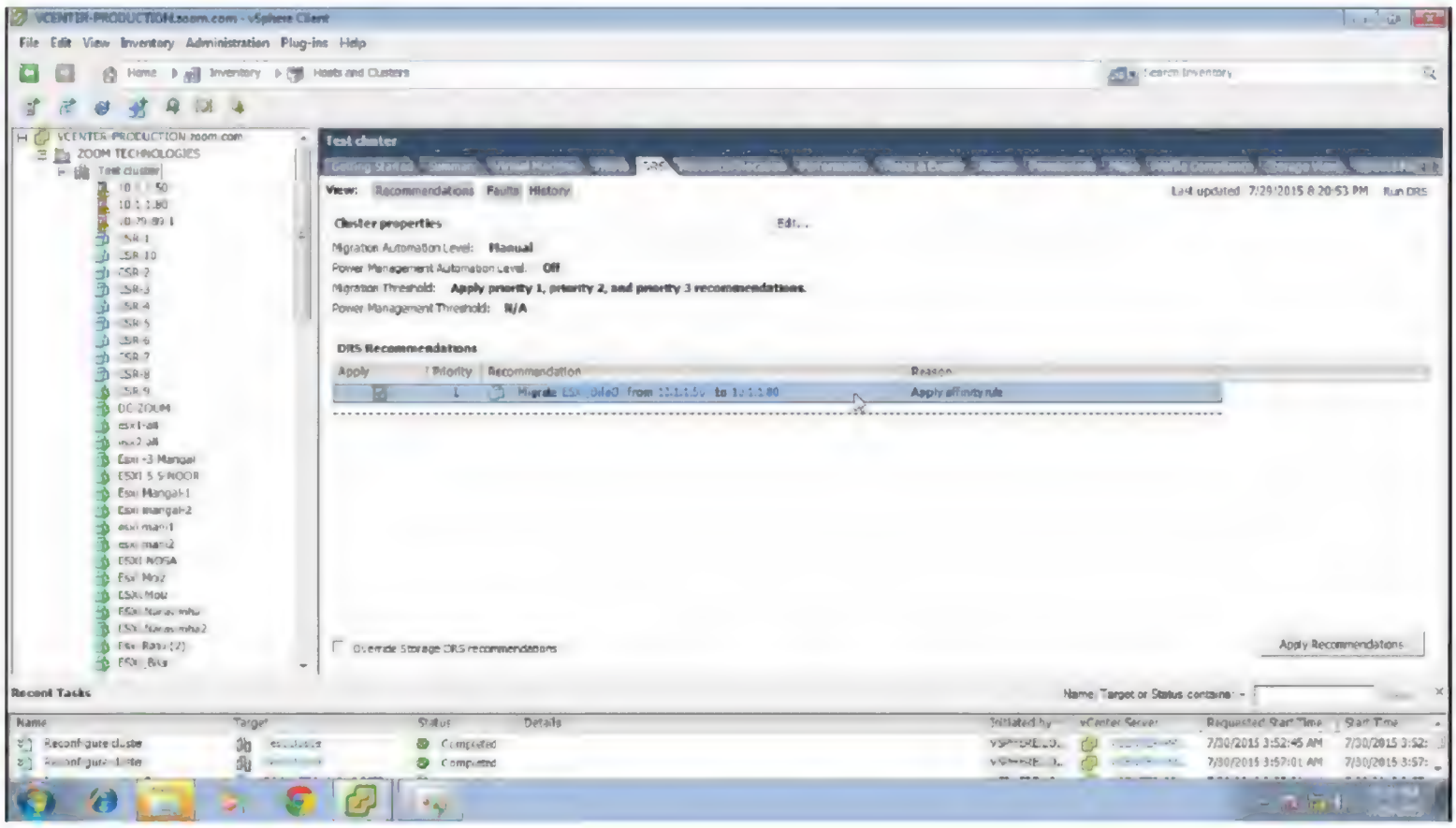


vCenter recommendations will appear, Select a recommendation

2. Power on



3. Click on Cluster - Select DRS tab - Run DRS



DRS Recommendation for Load Balancing

4. Apply Recommendations.

LAB-20: vSPHERE FAULT TOLERANCE

Objective:

To enable Fault Tolerance (FT) on a Virtual Machine

Prerequisites:

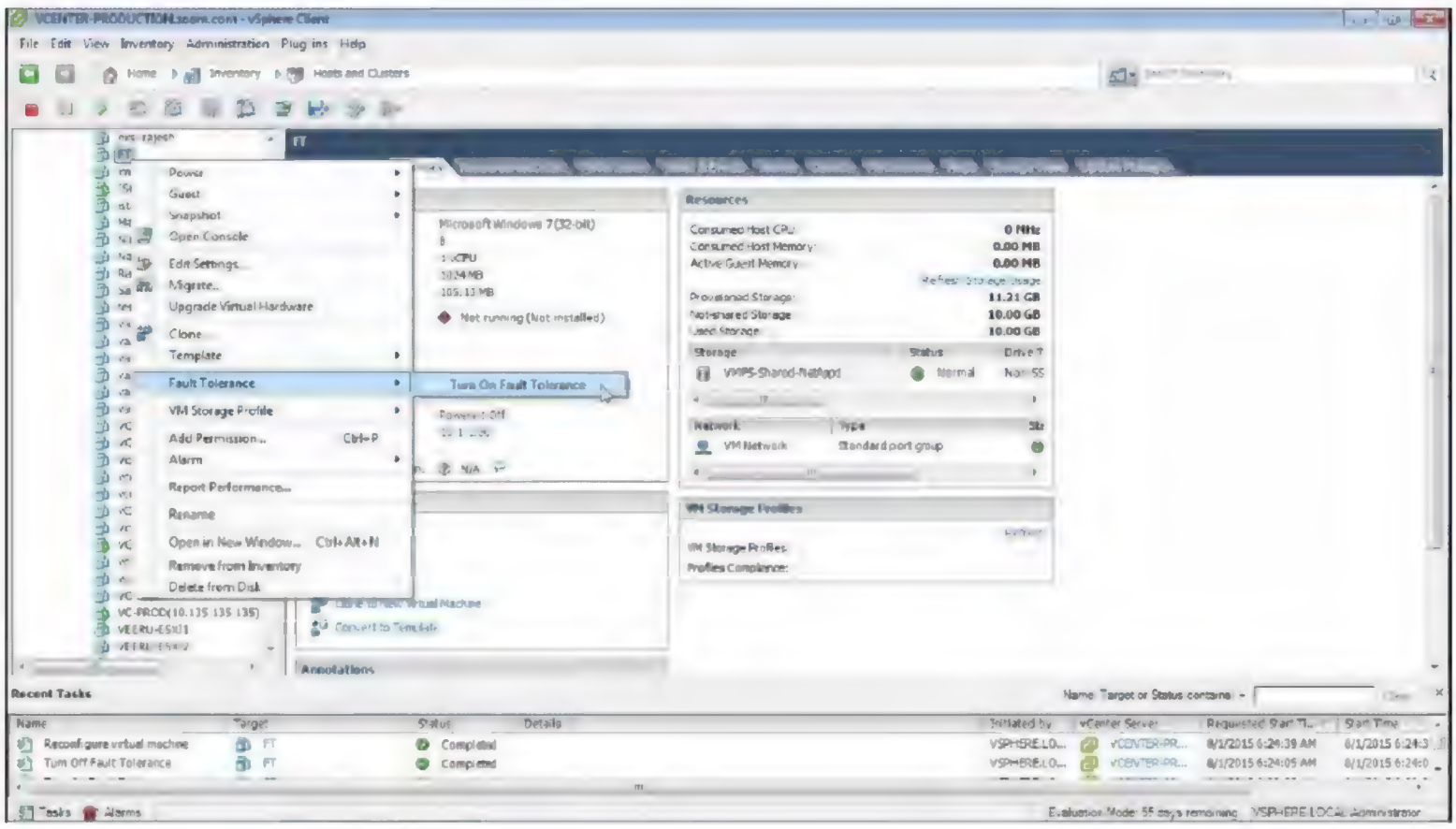
vCenter Server, vSphere HA Cluster

Tasks:

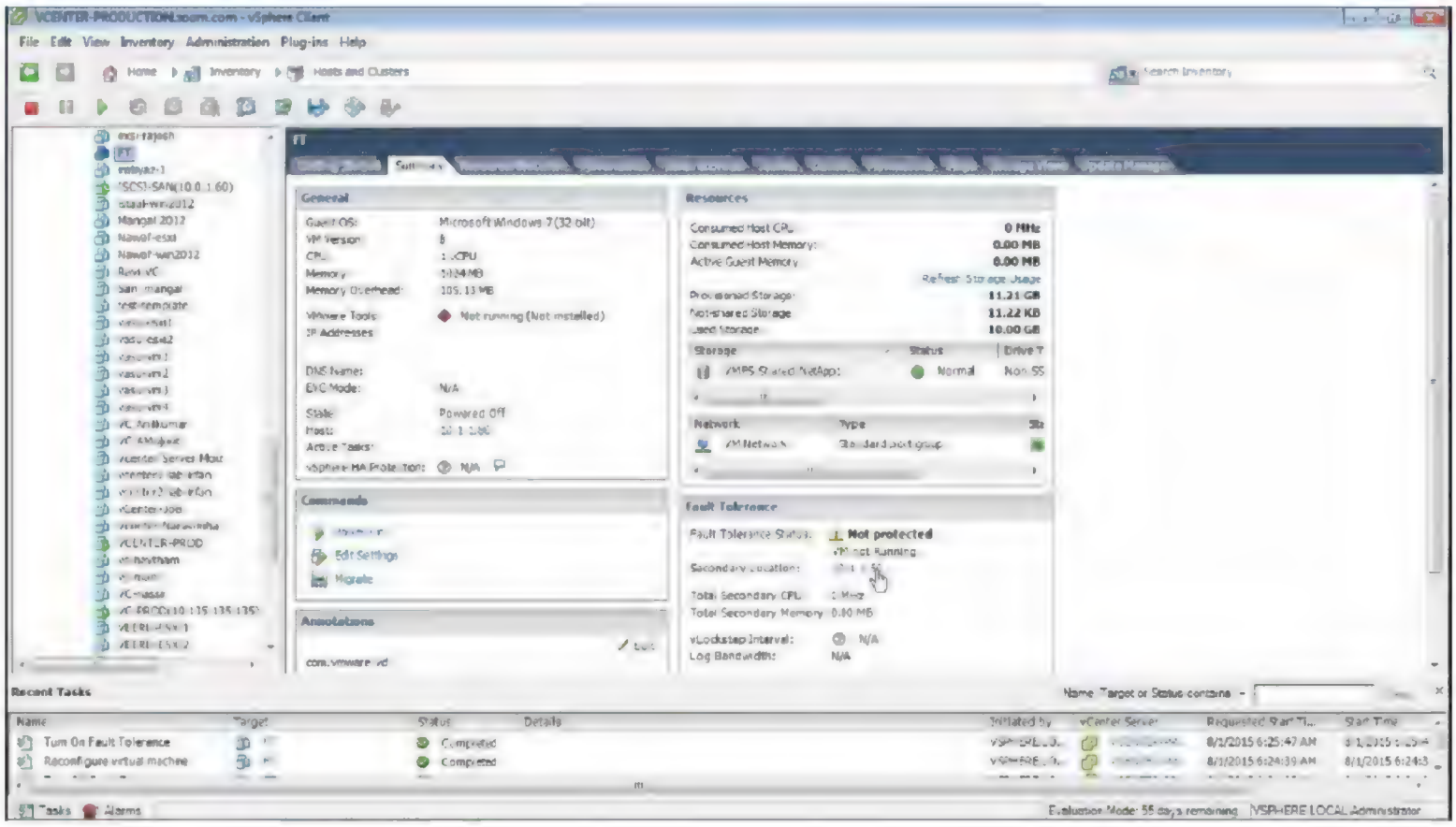
- Enable Fault Tolerance on a Virtual Machine
- Test vSphere Fault Tolerance

Steps:

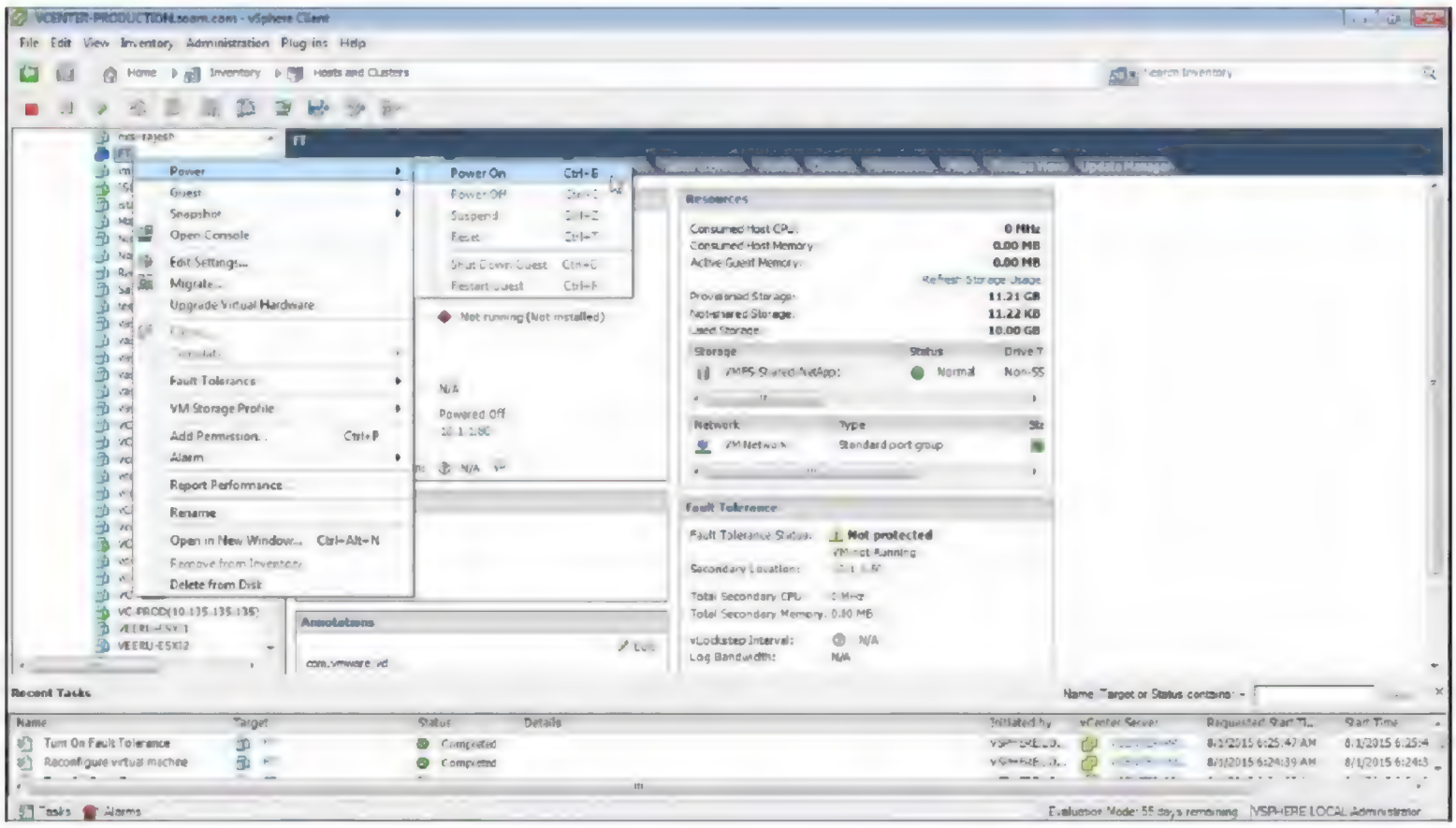
1. Login to vCenter Server



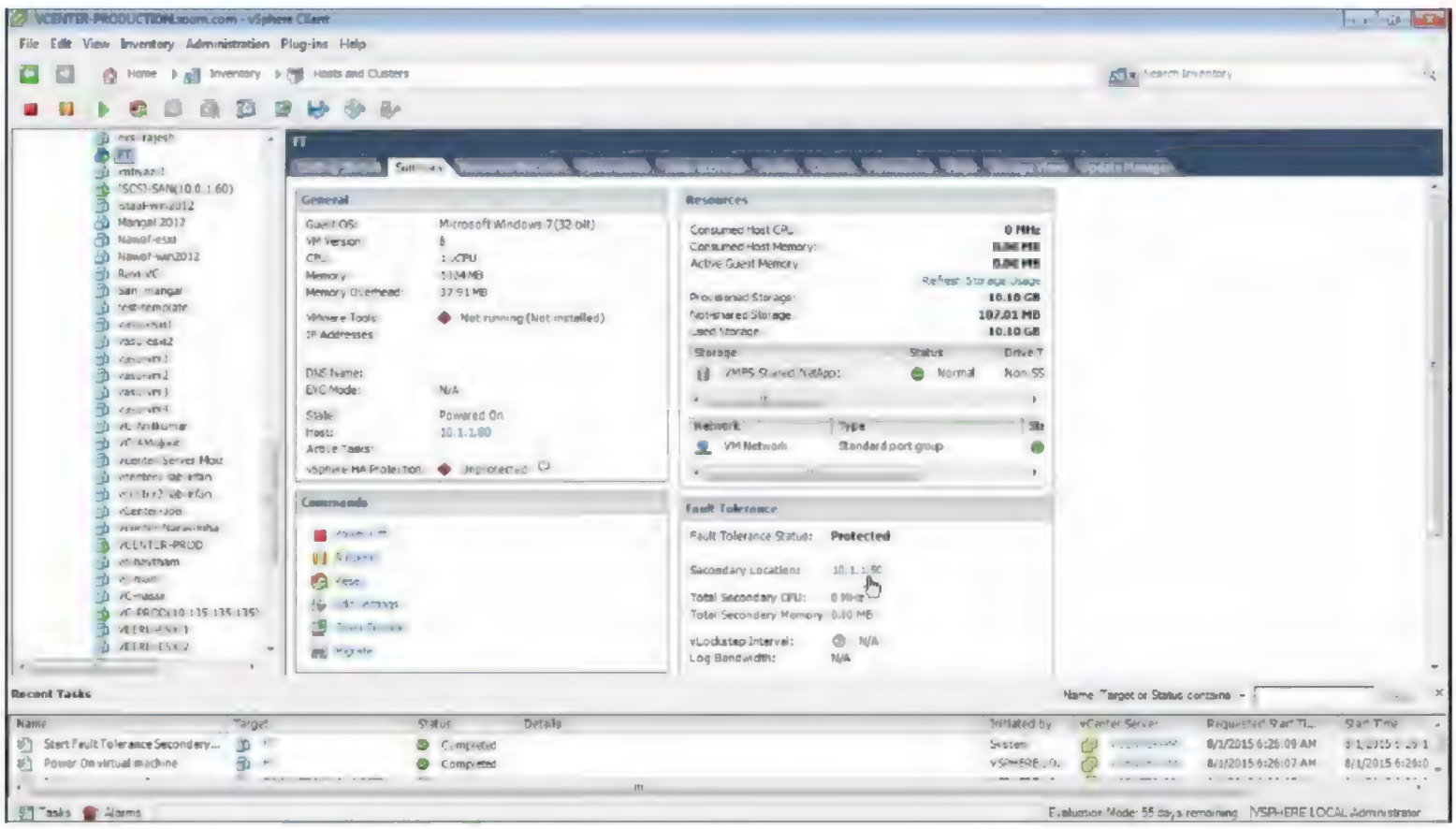
2. Right Click on VM - Fault Tolerance - Turn On Fault Tolerance



Observe Primary is on the Host 10.1.1.80 and a Secondary Machine is created on 10.1.1.50



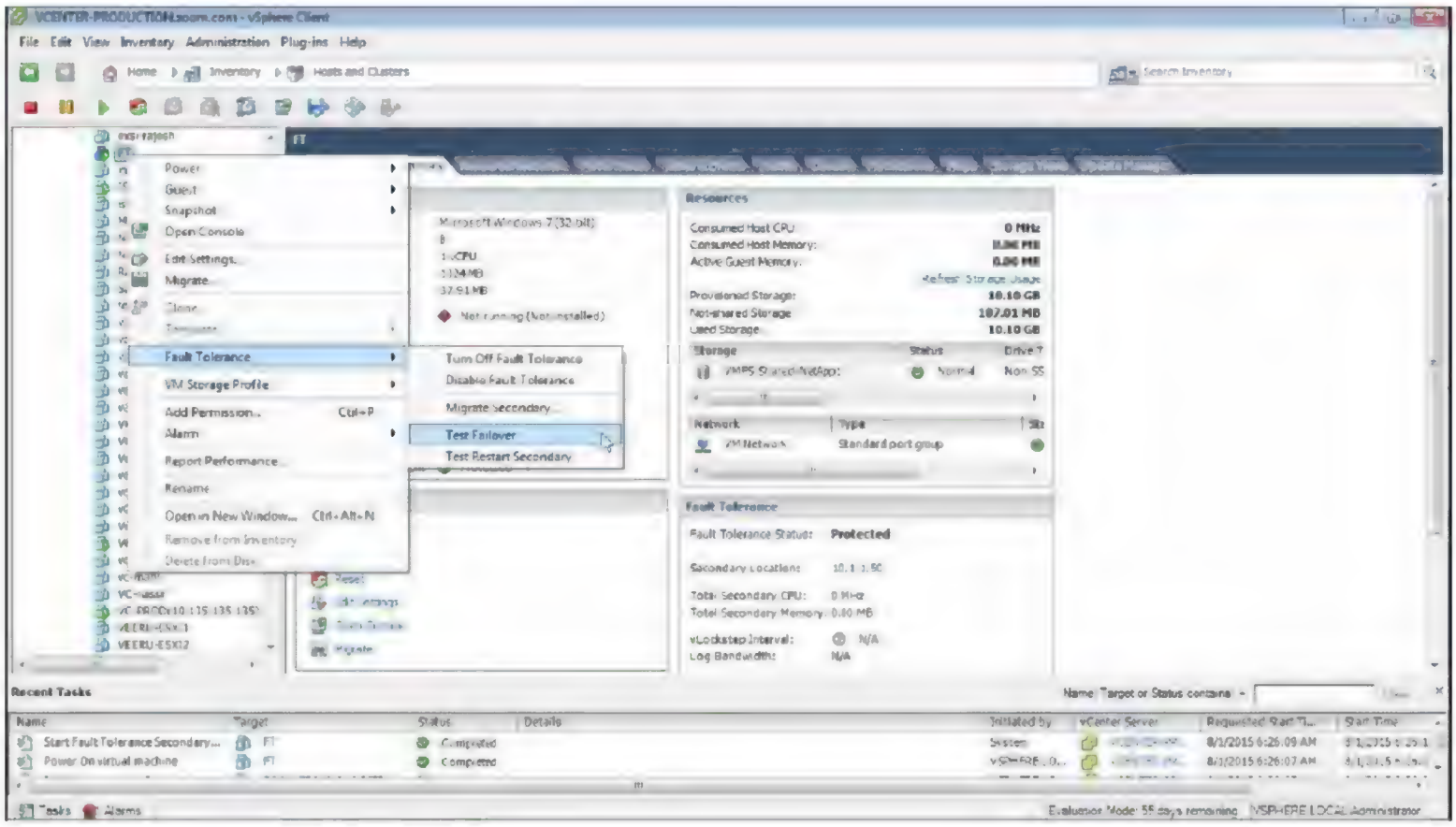
3. Right Click the VM - Power On



Observe both Primary and Secondary VMs are Running

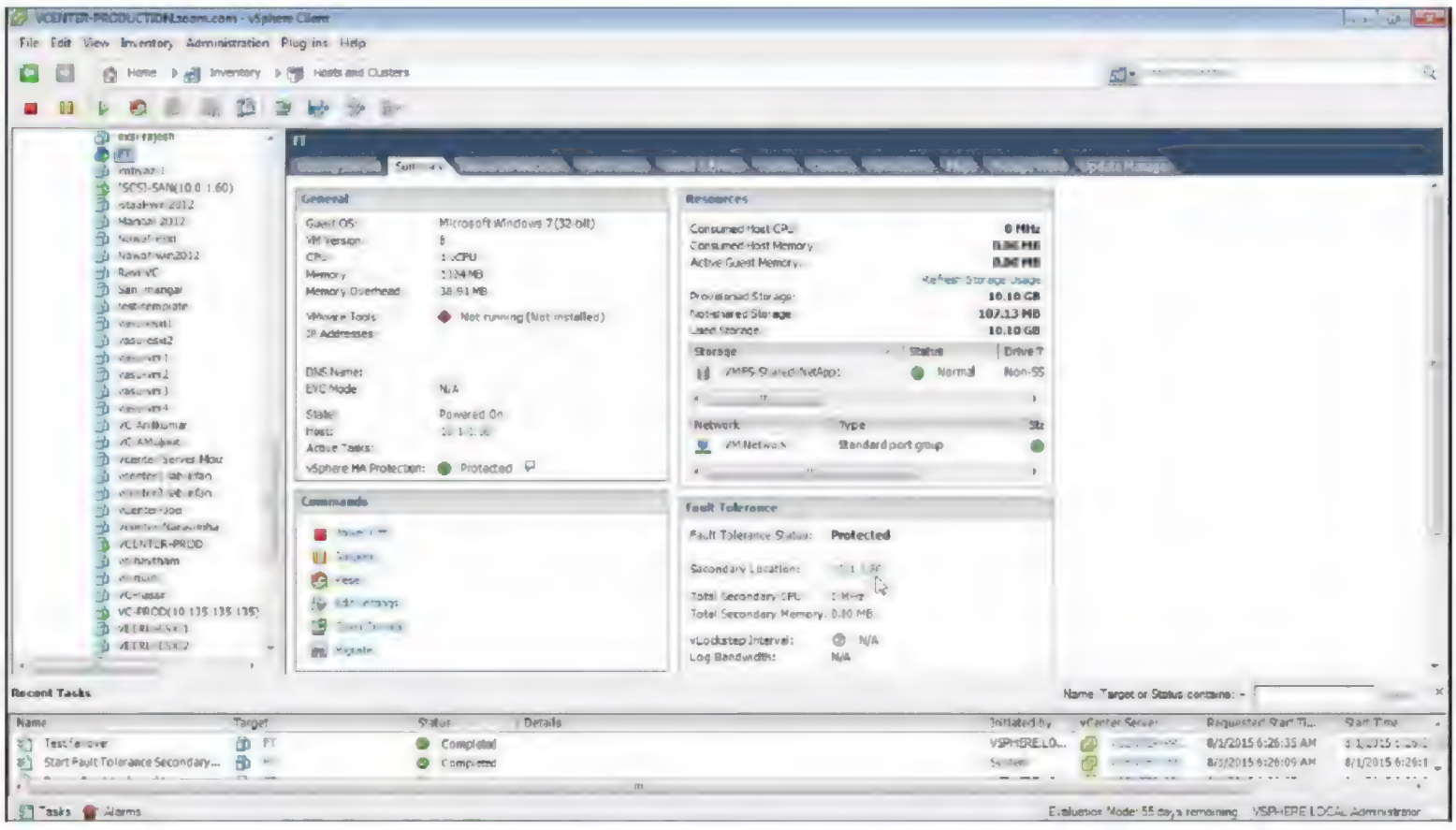
Testing vSphere FT

Steps:



1. Right Click the VM - Fault Tolerance - Test Failover

Verification:



Observe secondary VM is now primary and primary VM is secondary

LAB-21: UPDATE MANAGER

Objective:

To manage patching of ESXi Hosts using Update Manager

Prerequisites:

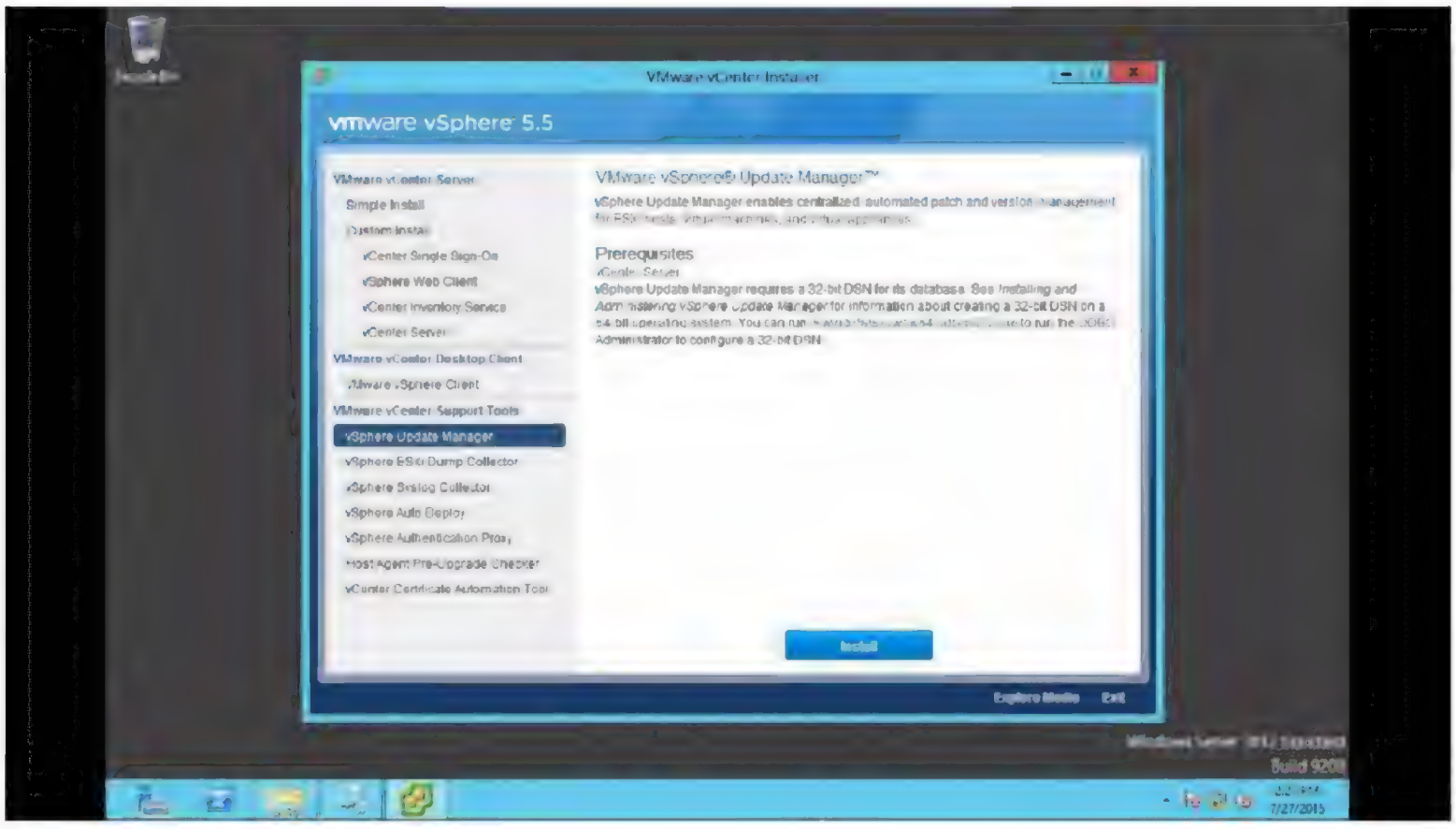
vCenter Server

Tasks:

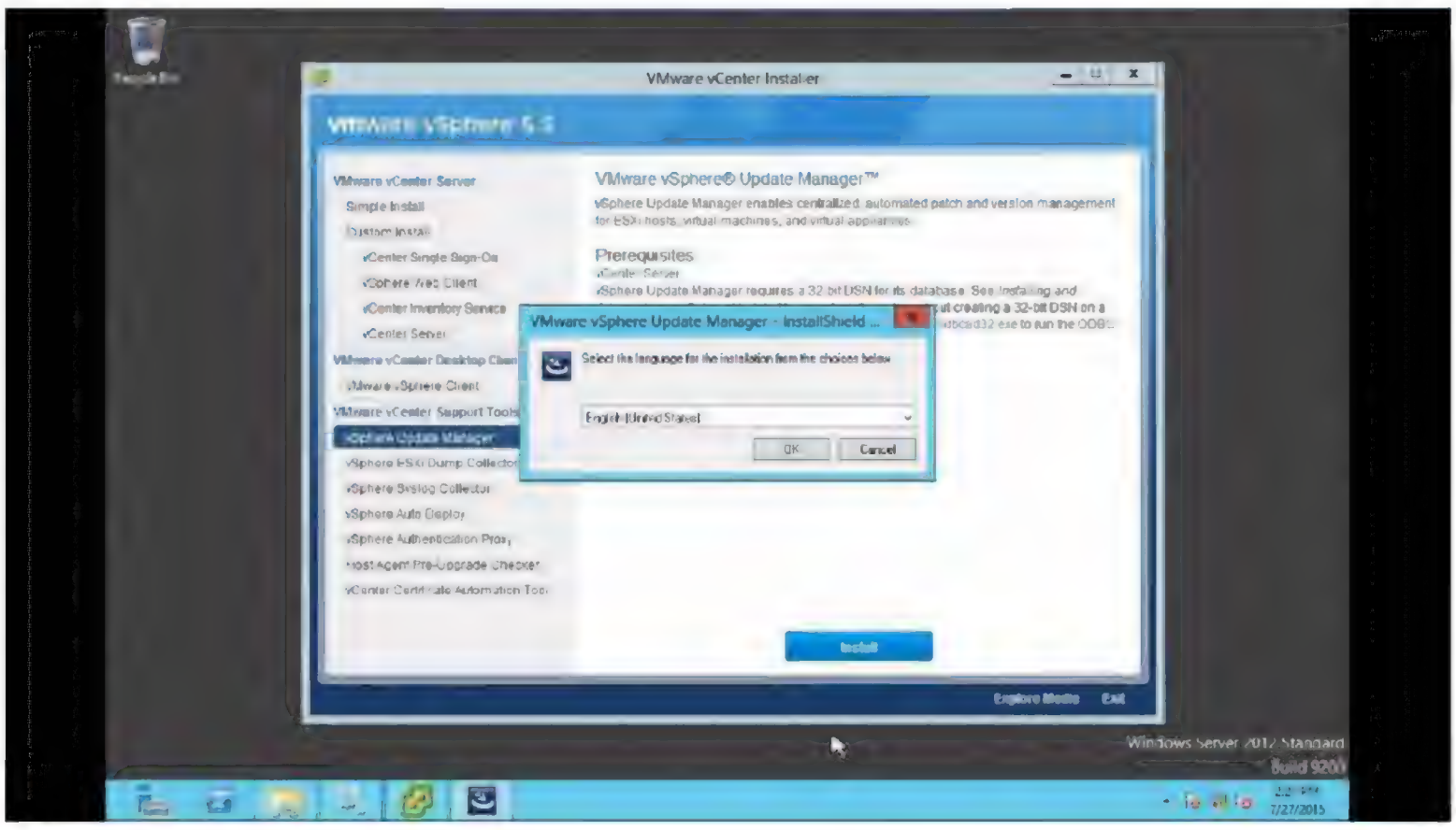
- Install Update Manager Server & Client Components
- Upload Patches
- Install Patch on ESXi Host

Steps:

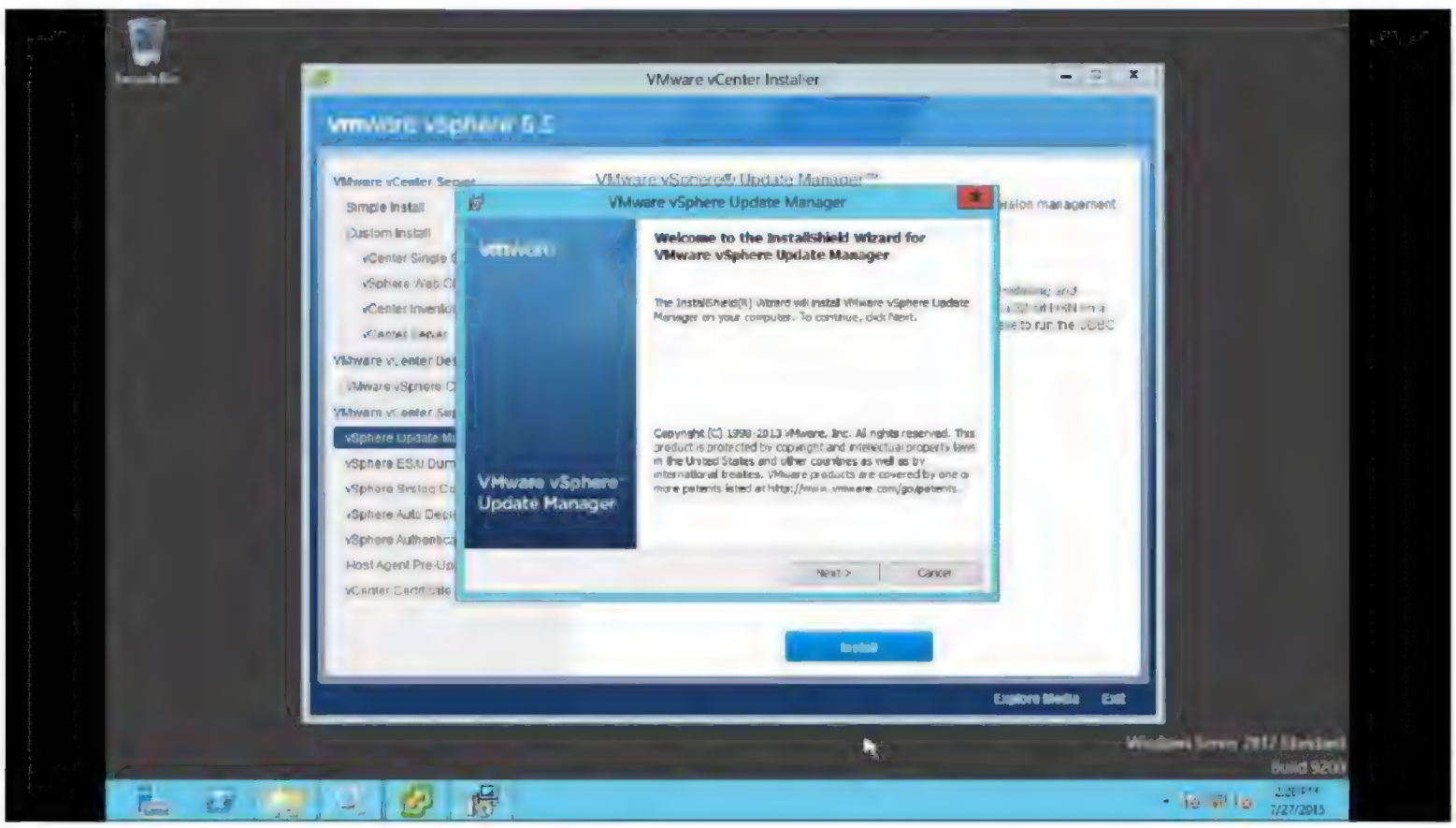
1. Mount the ISO image of vCenter installer on the machine to install Update Manager server component



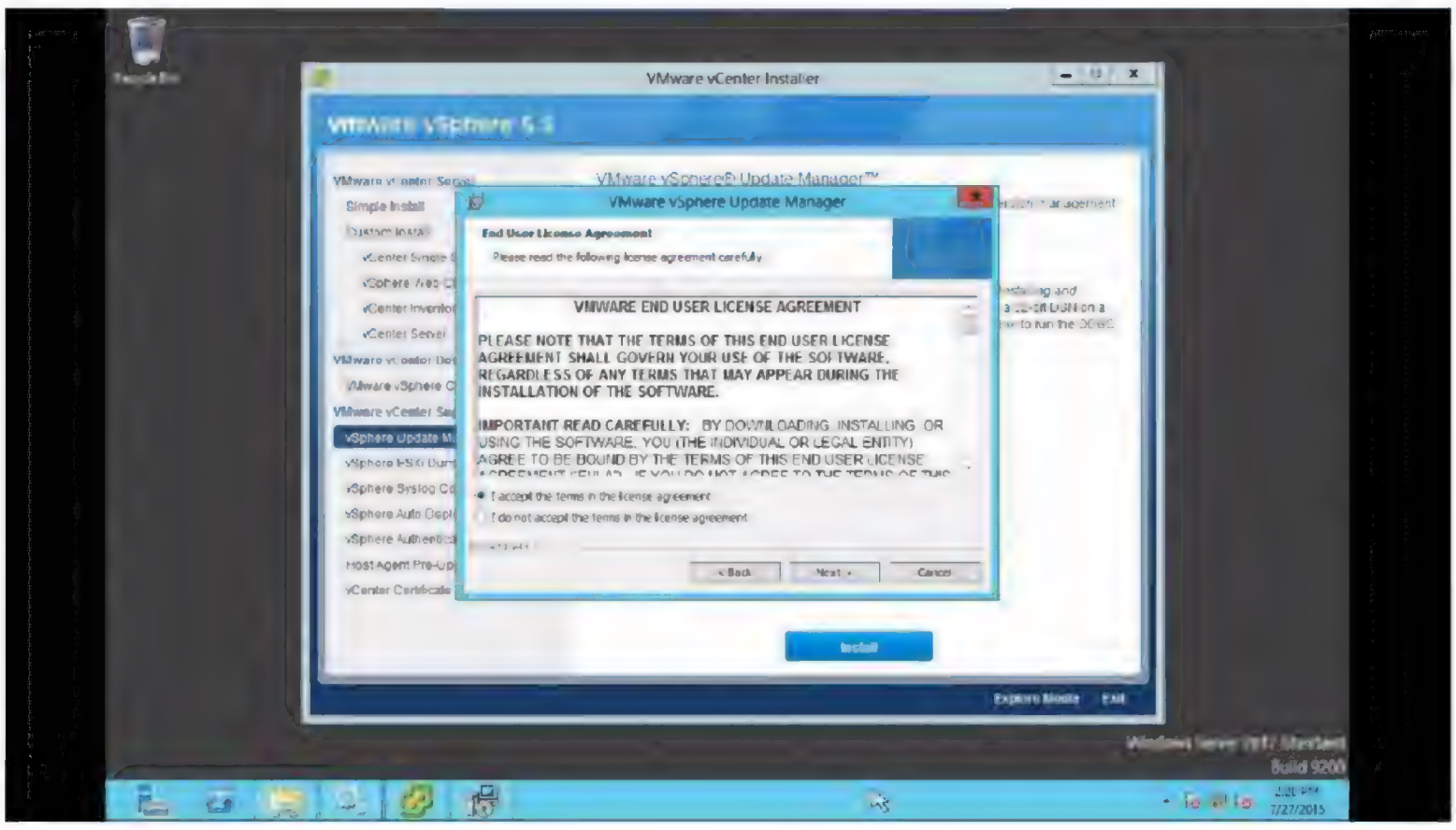
2. Select vSphere Update Manager – Install



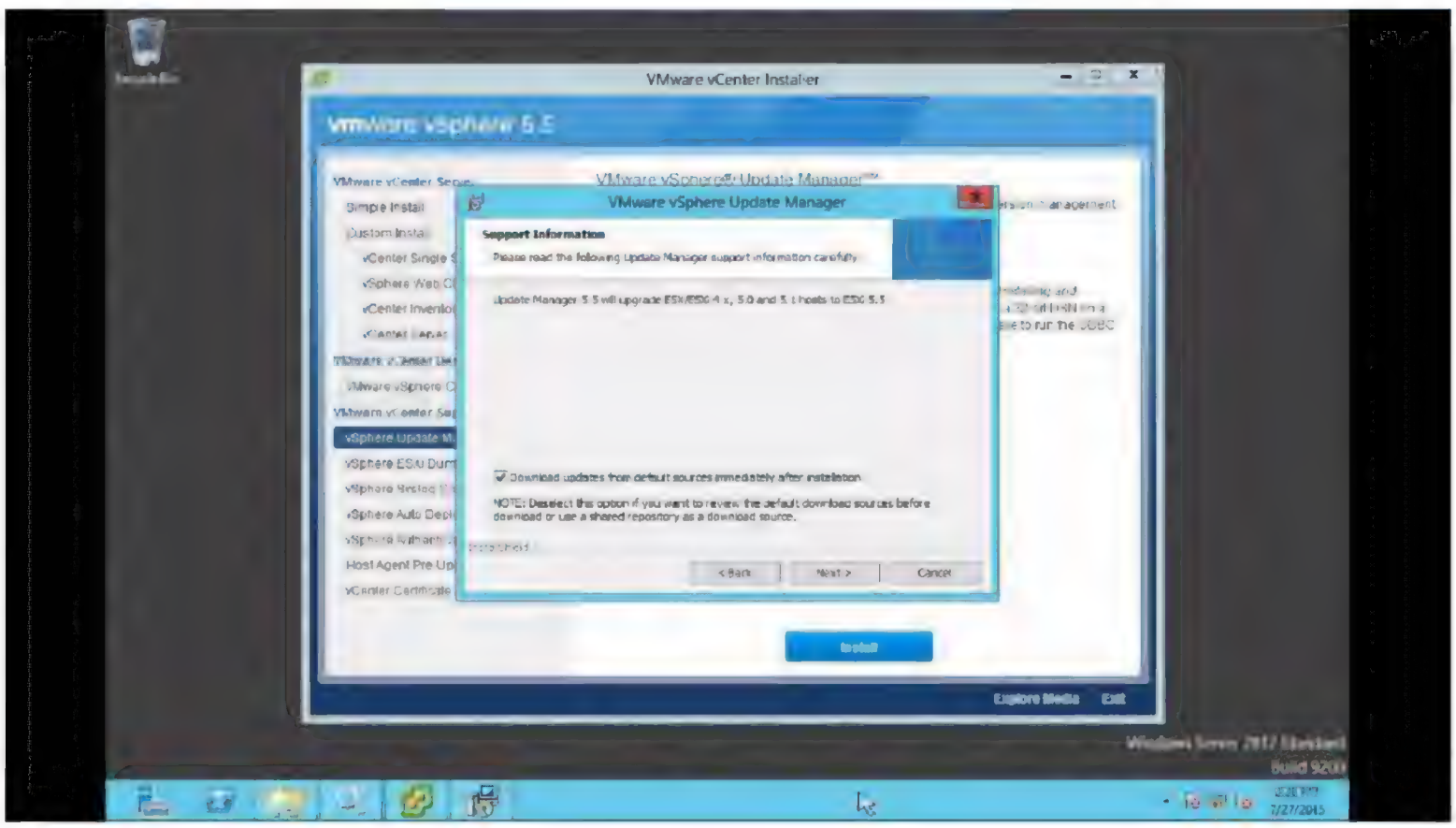
3. OK to continue with the installation



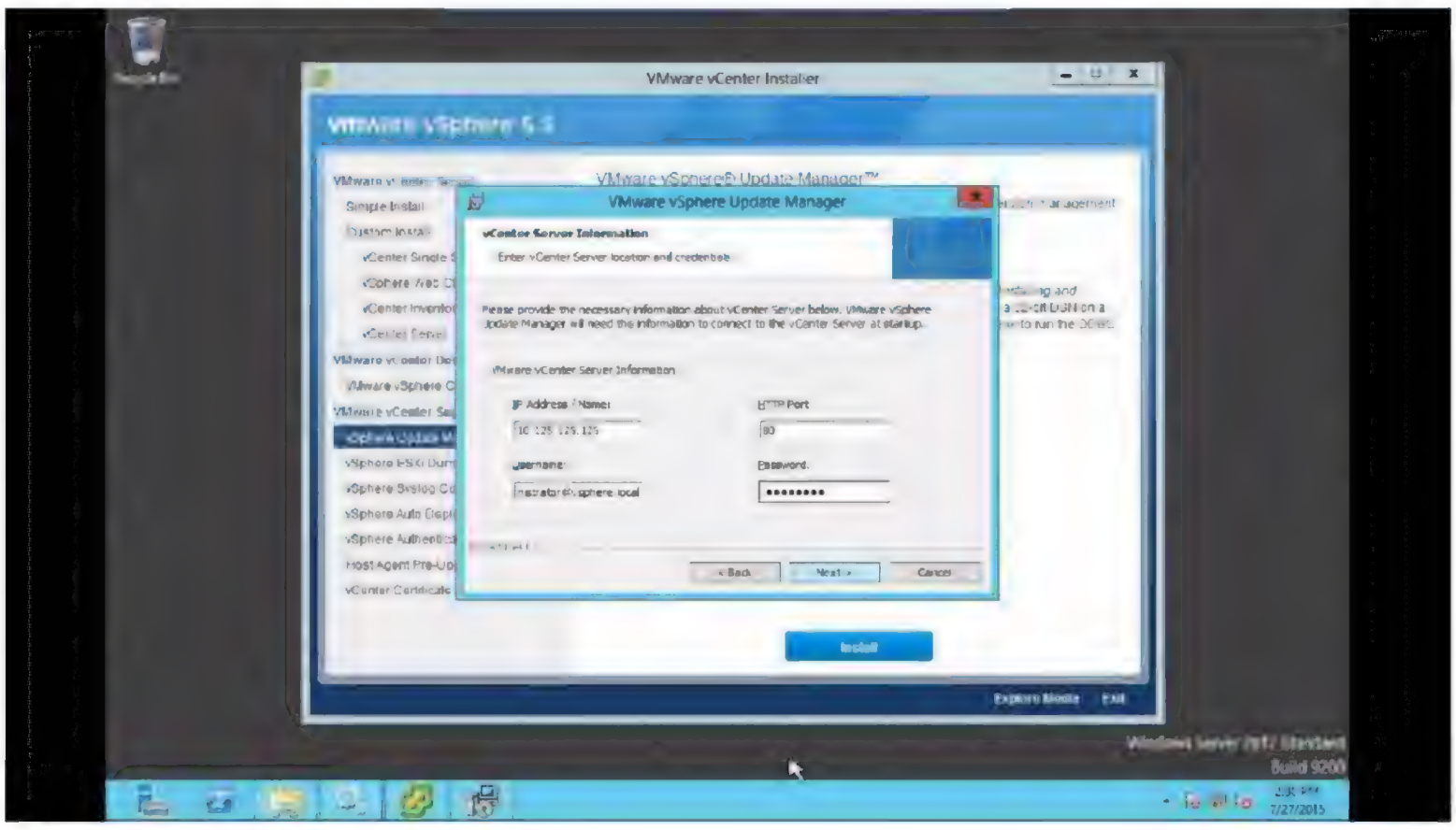
4. Next to continue



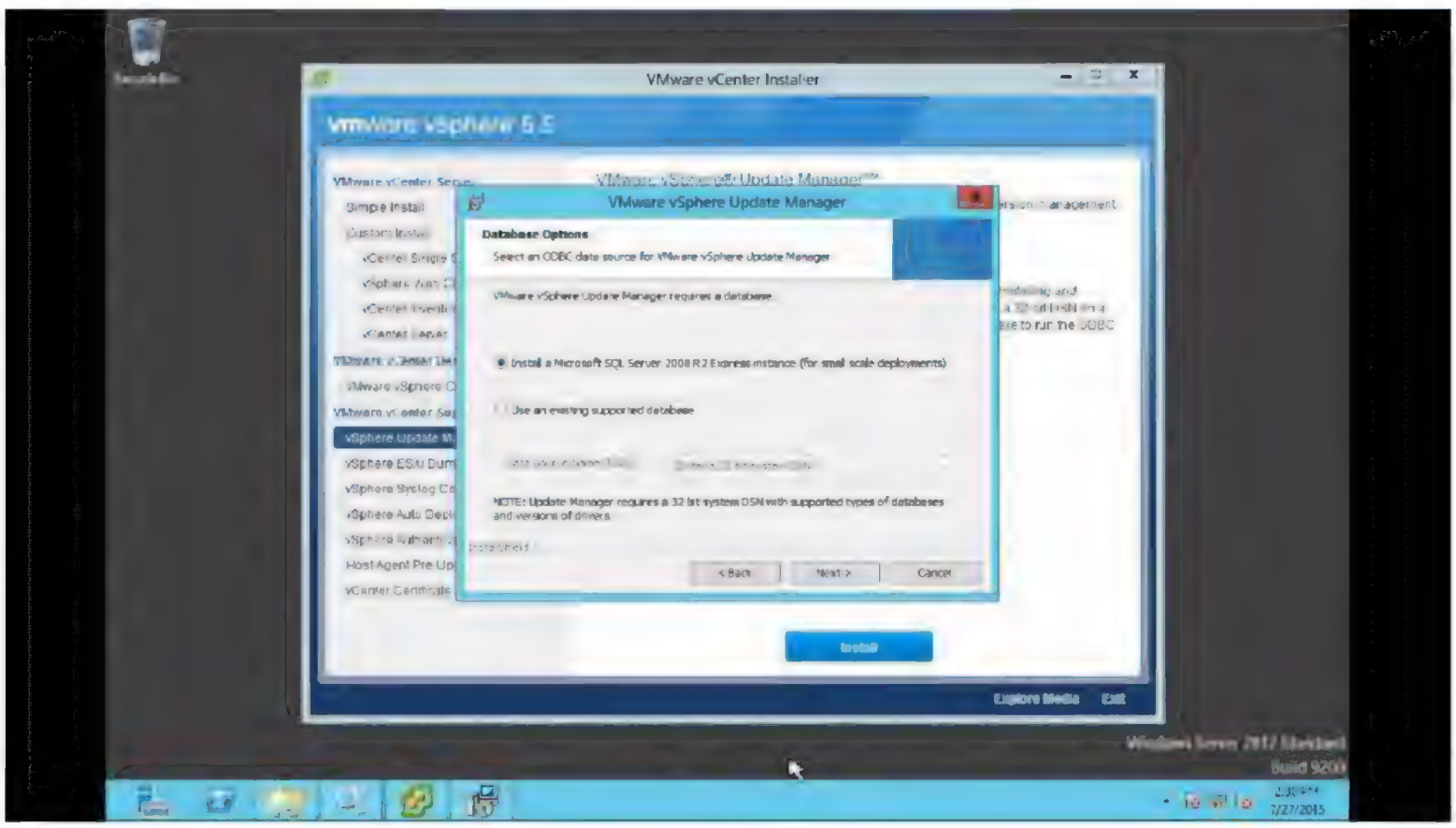
5. Accept the End User License Agreement – Next to continue



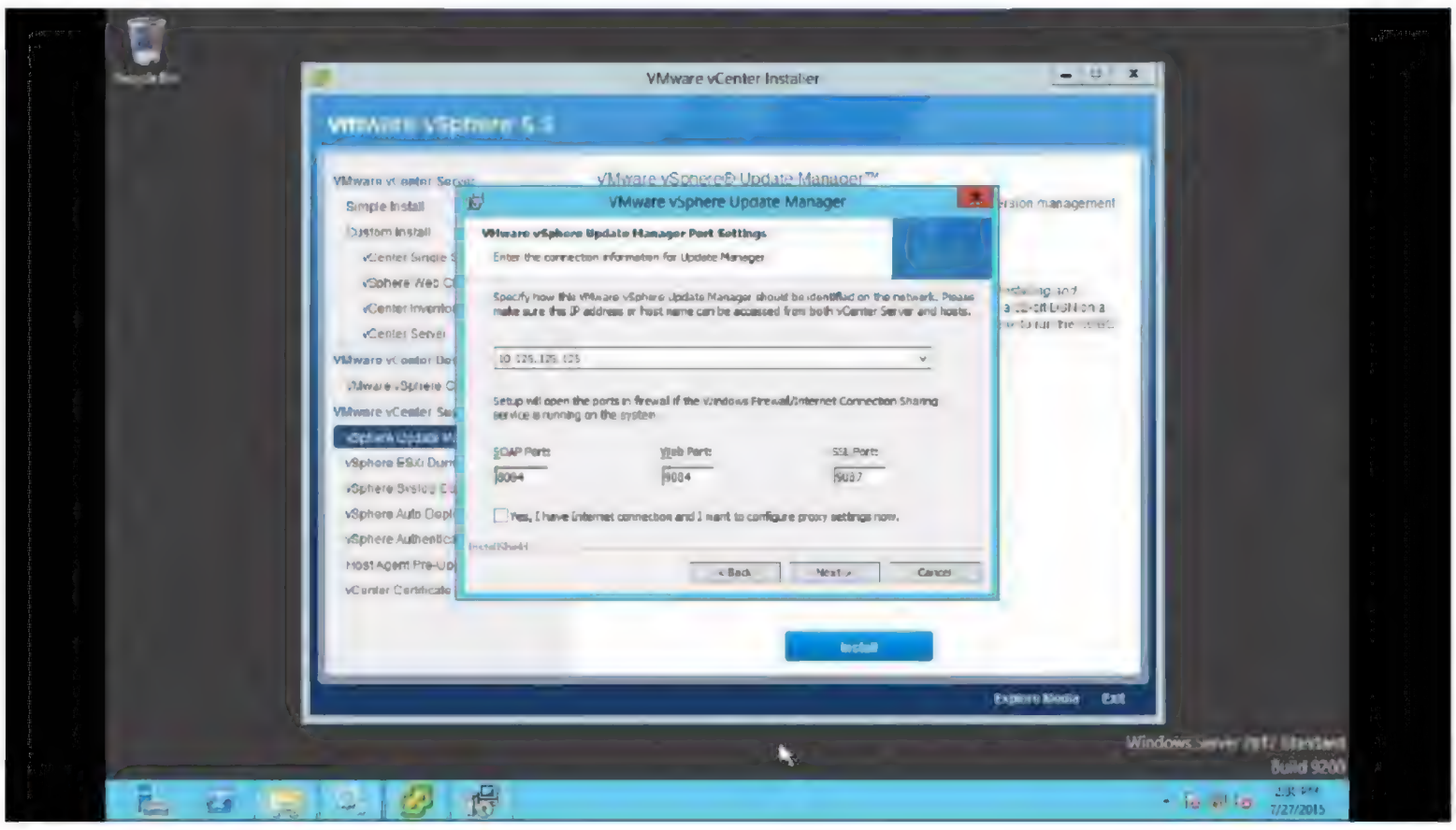
6. Next to continue



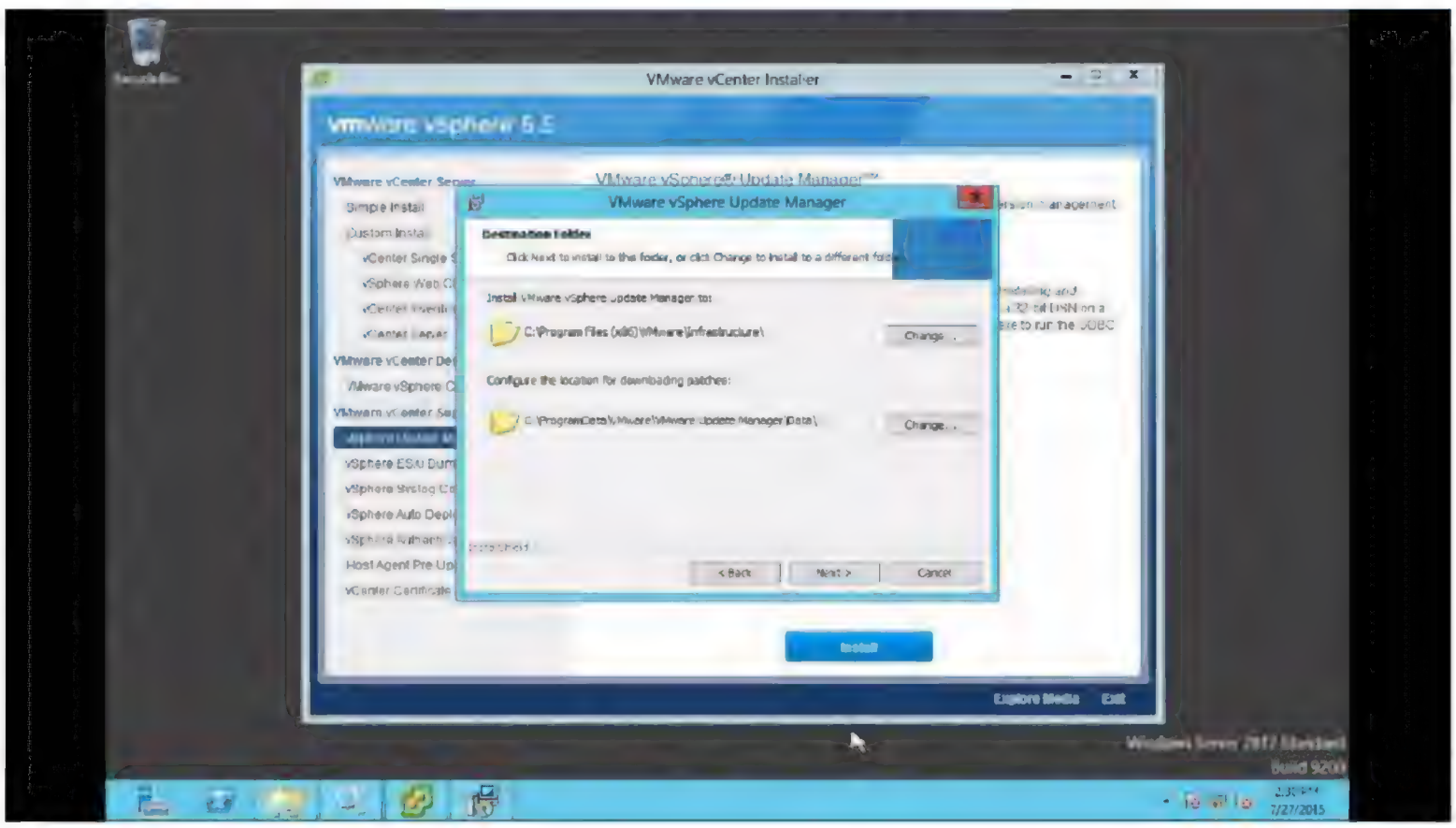
7. Enter the details/credentials of vCenter Server – Next



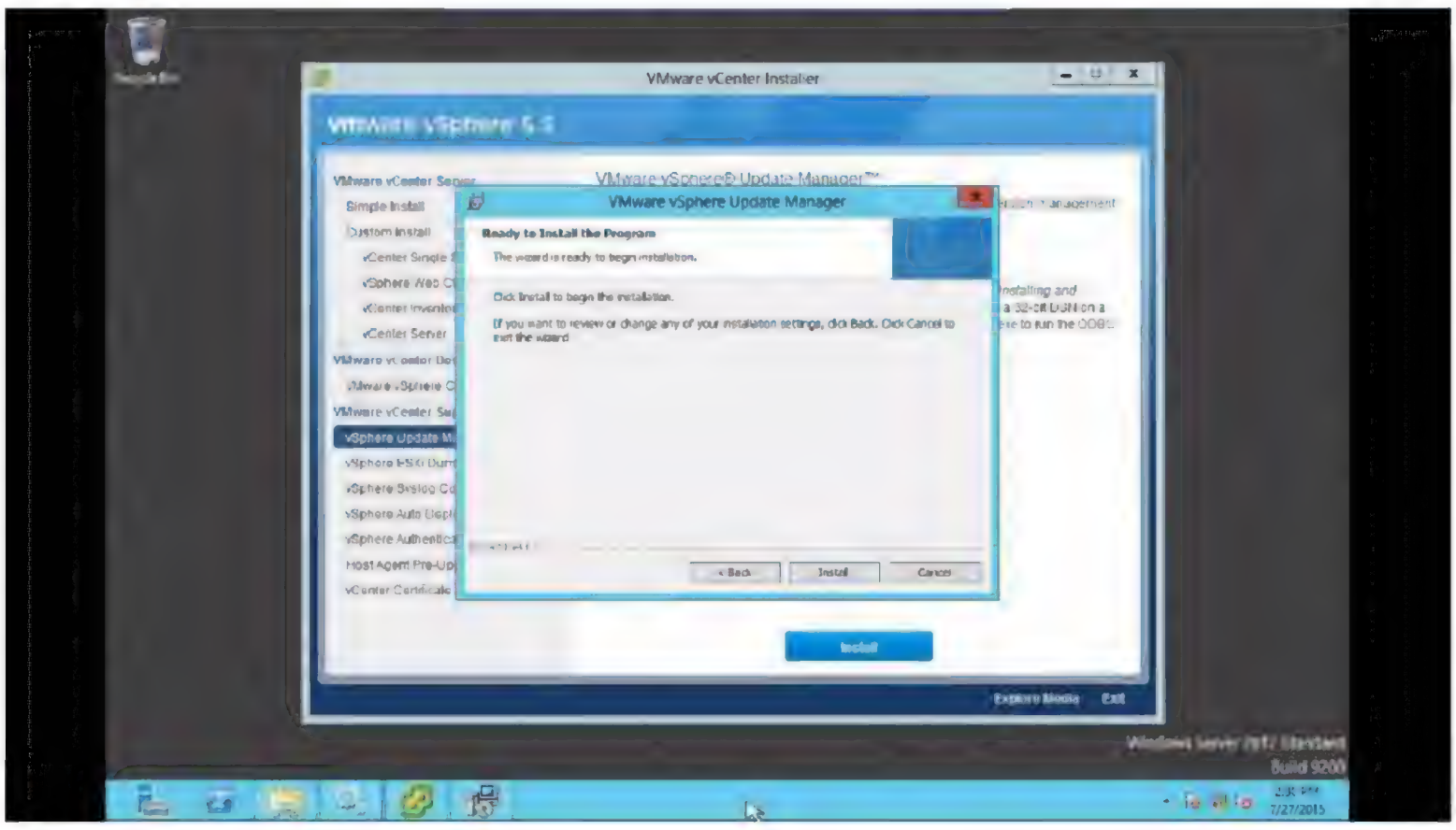
8. Select Database options, Next to continue



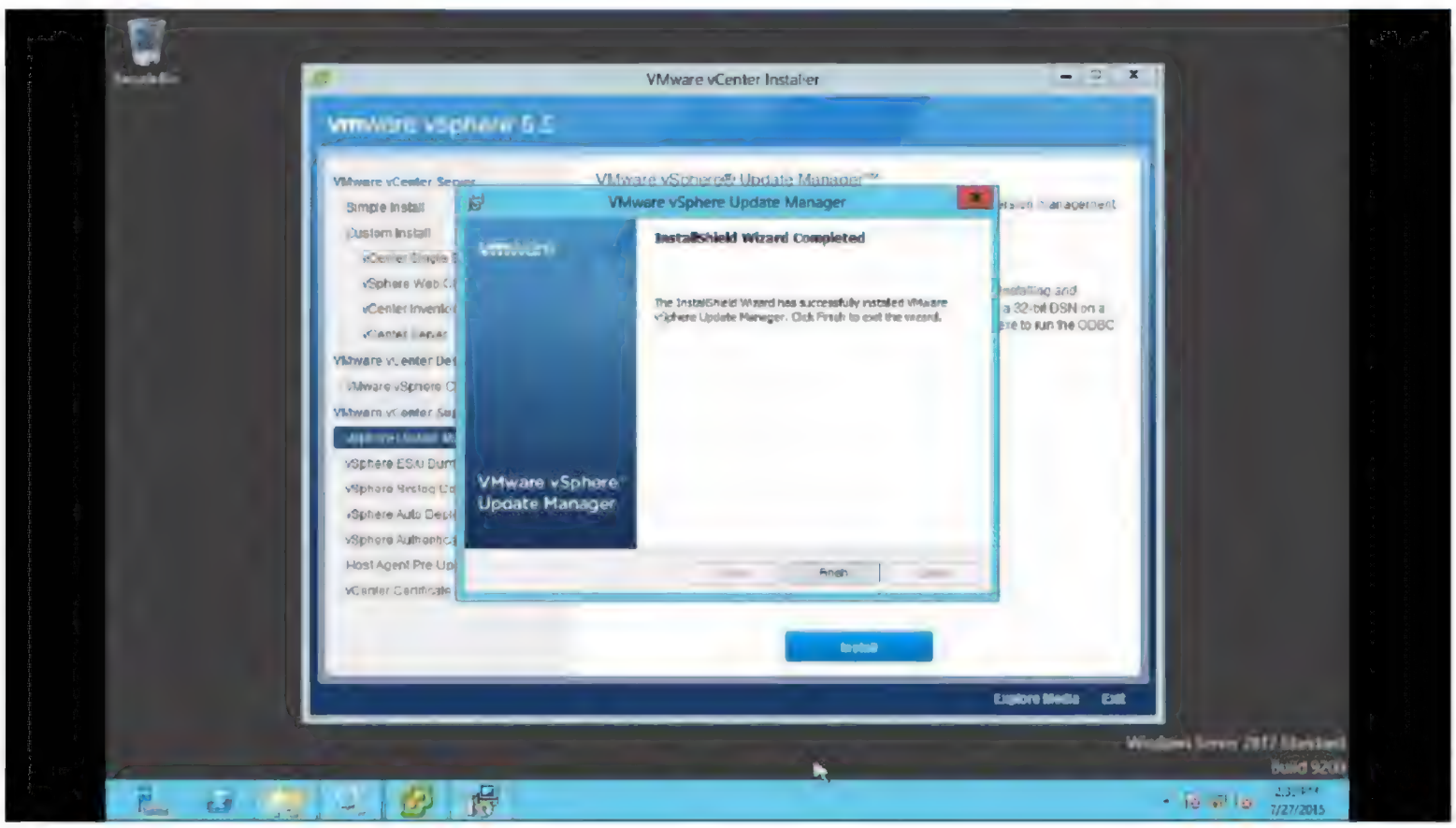
9. Accept the default options unless using proxy settings, Next to continue



10. Next to accept default destination for update manager & its database



11. Install

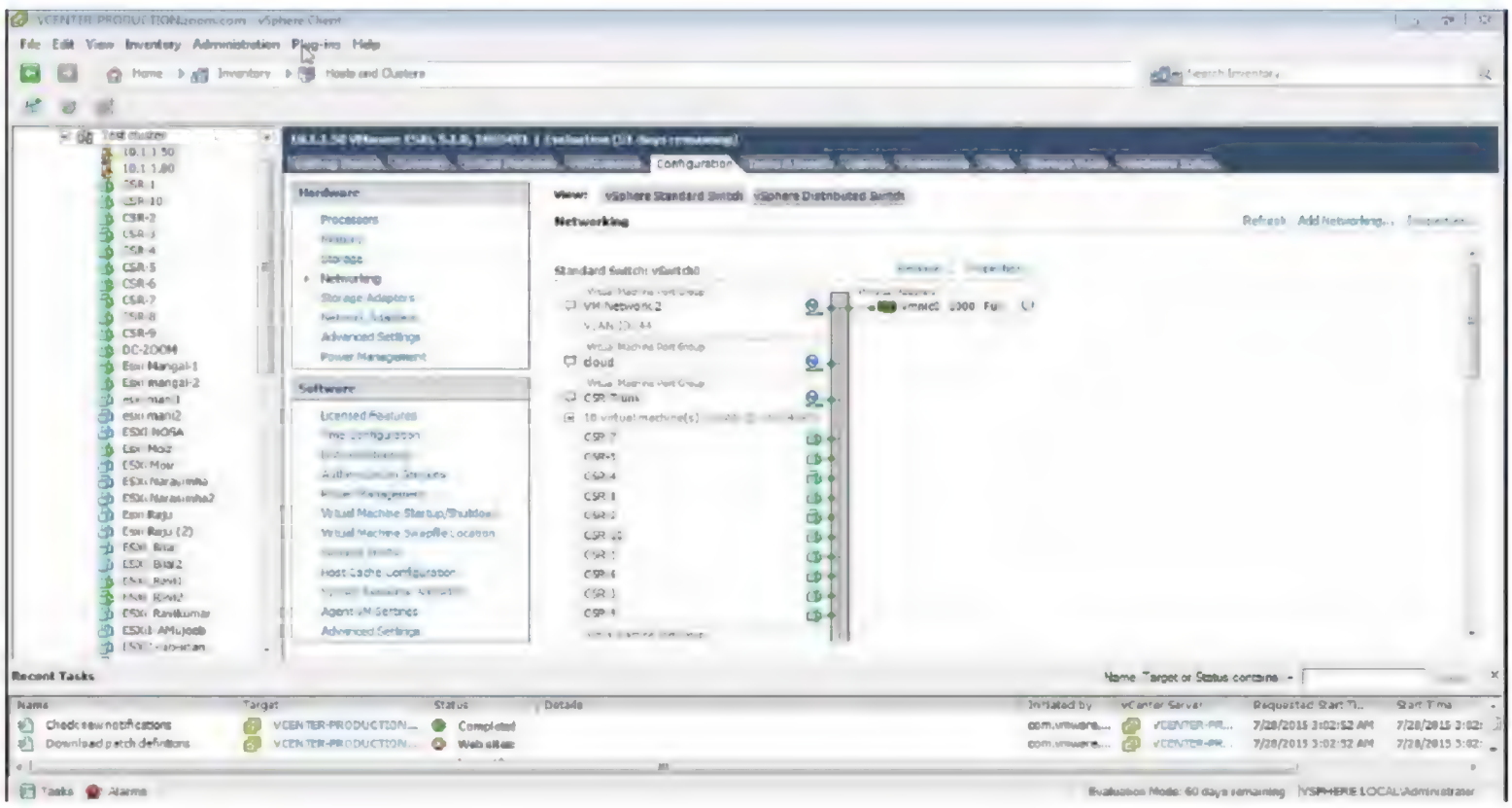


12. Finish to complete the installation of Update Manager server

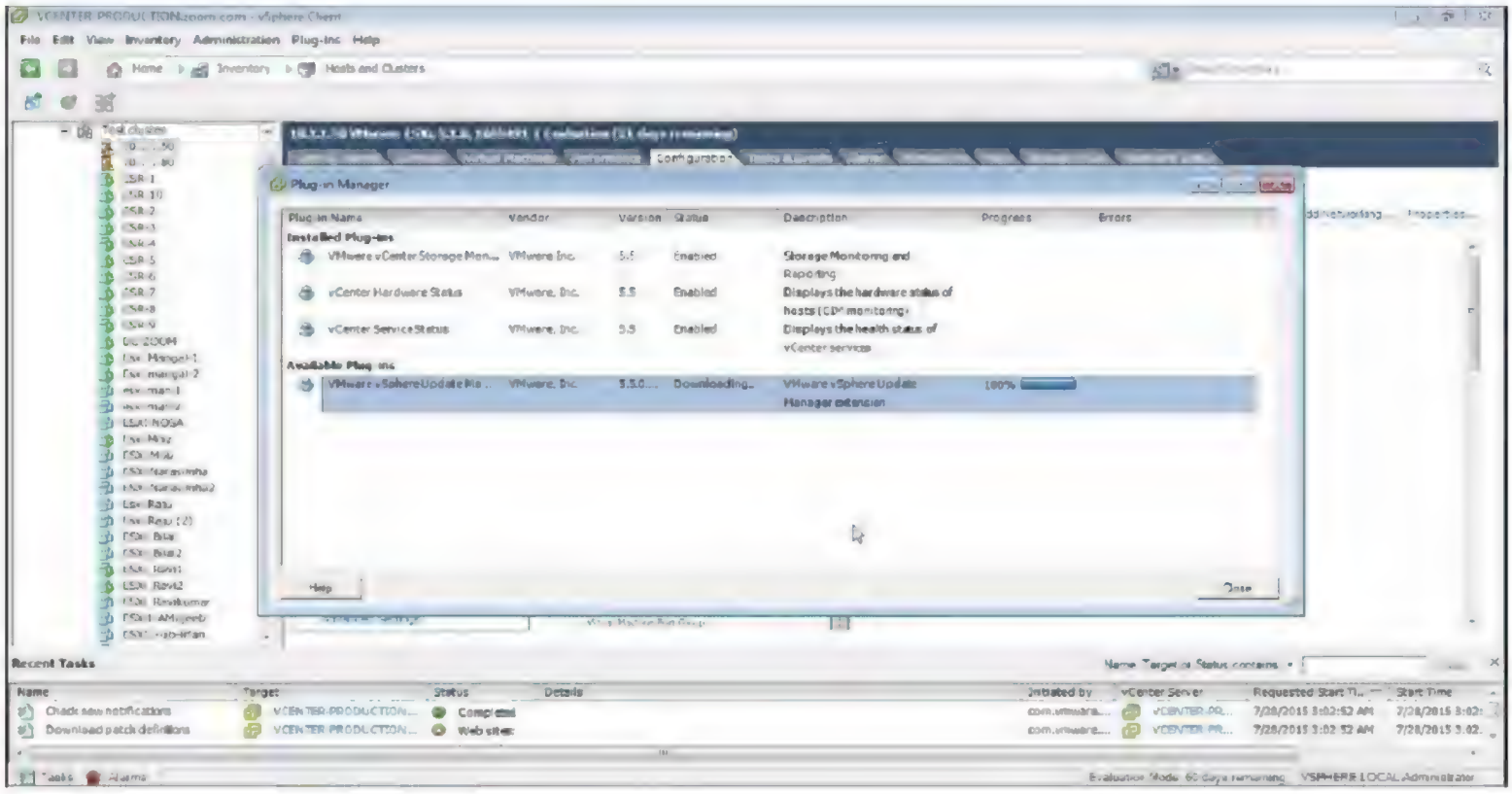
Installing Update Manager Client

Steps:

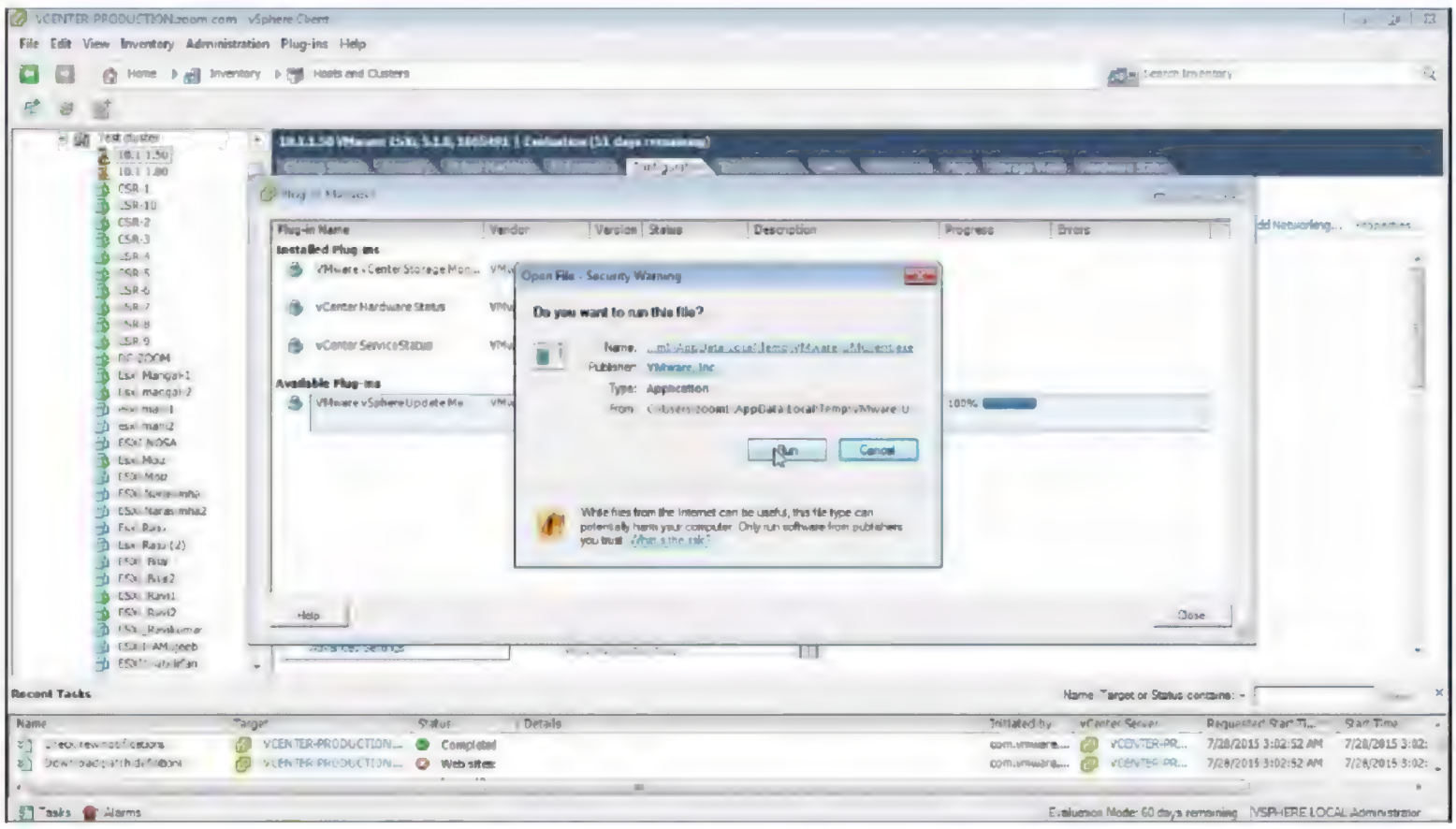
1. Login to vCenter using vSphere Client



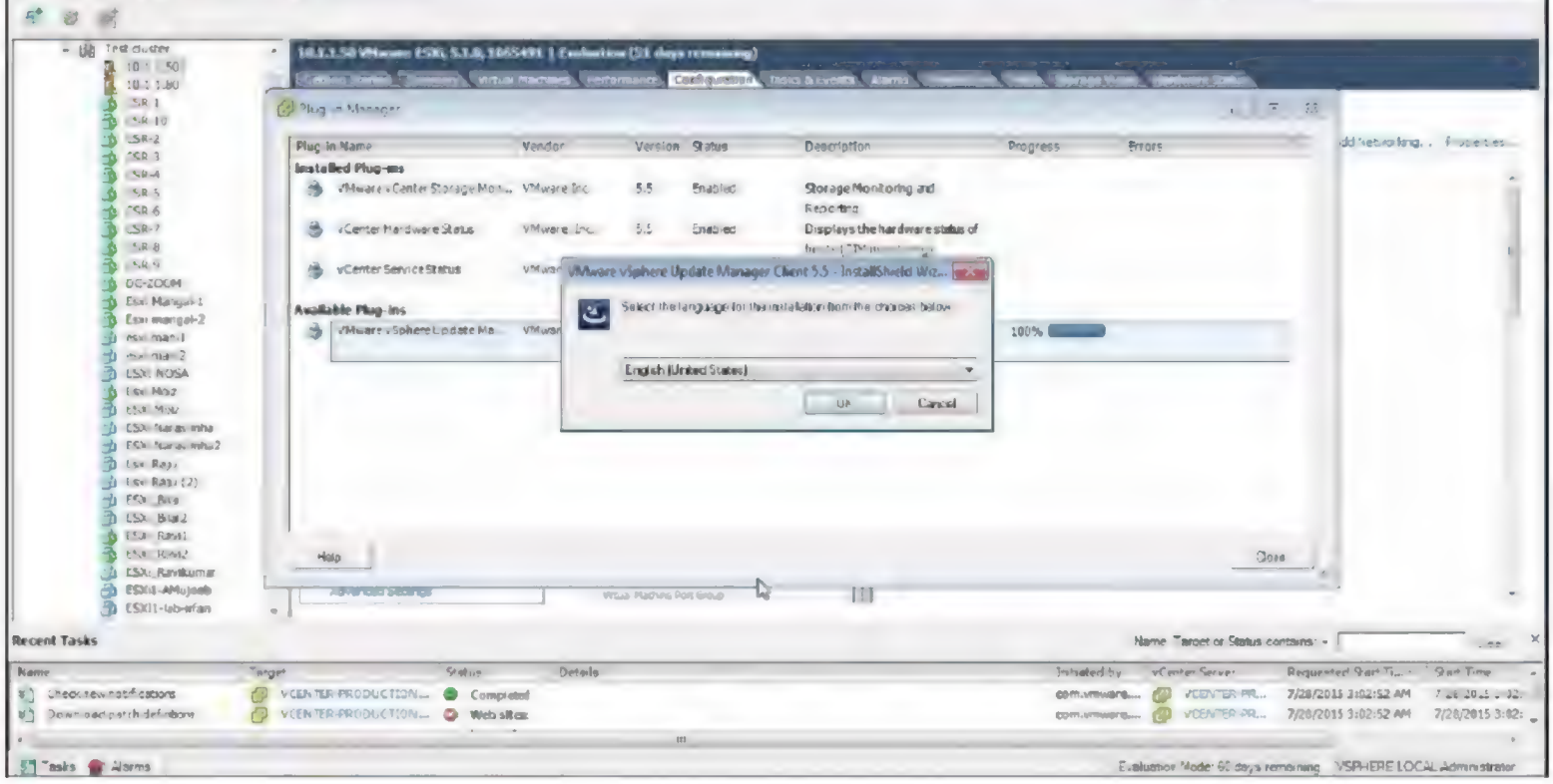
2. Click on Plug-ins



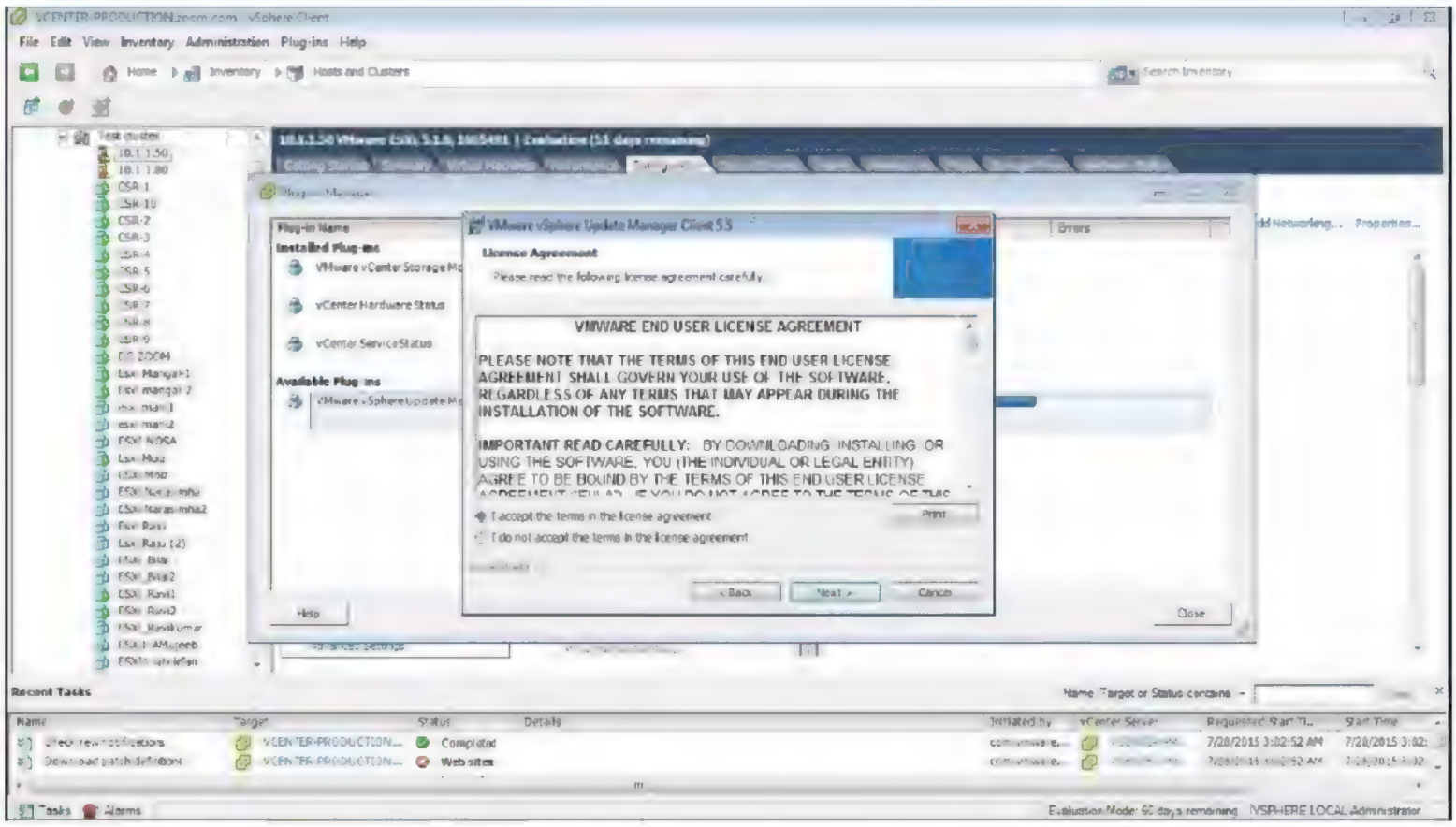
3. Under Available Plug-ins click on Download



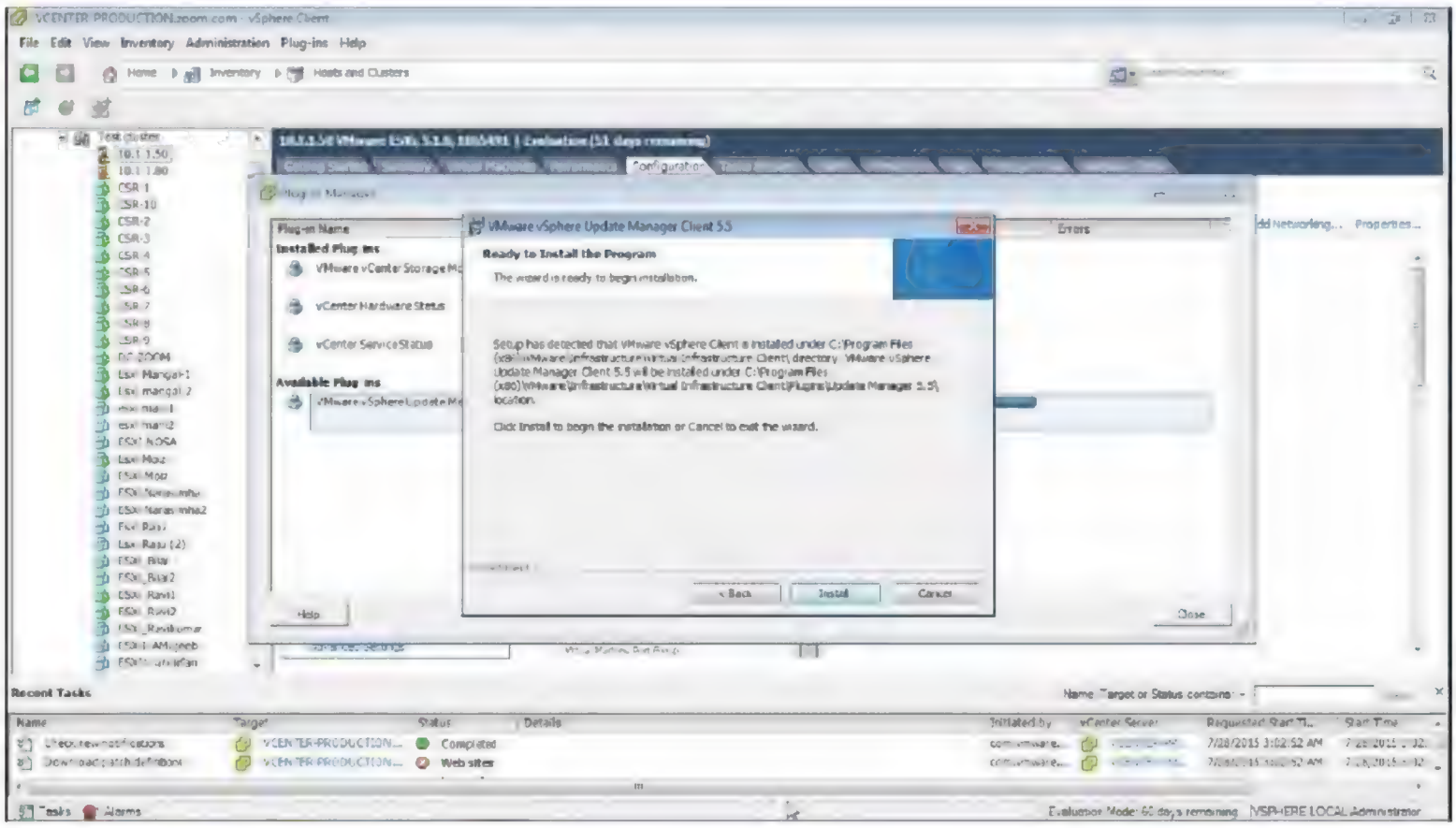
4. Run to start the installation



5. Select the language, OK to continue

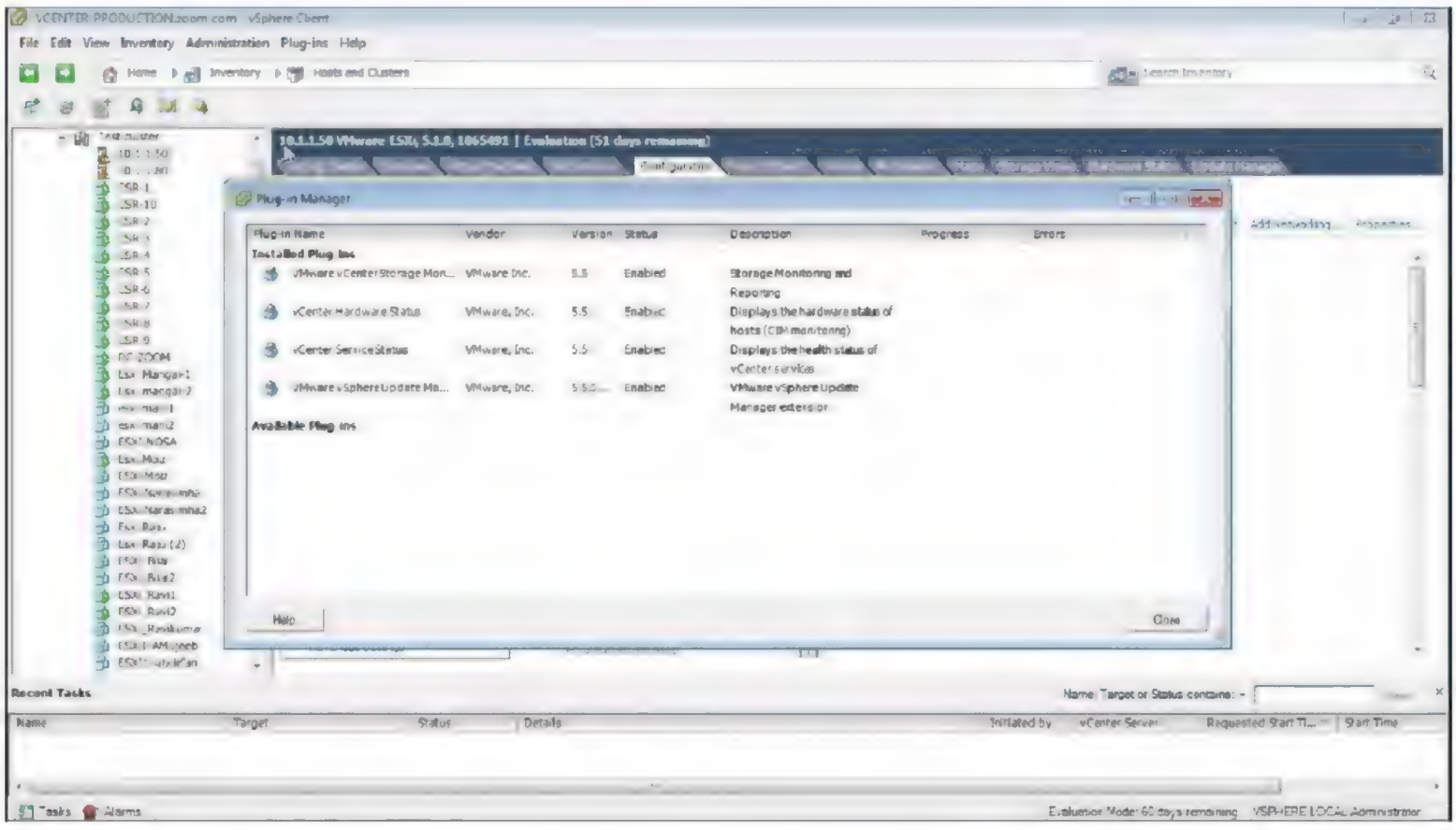


6. Accept the License Agreement – Next



7. Install

Verification:

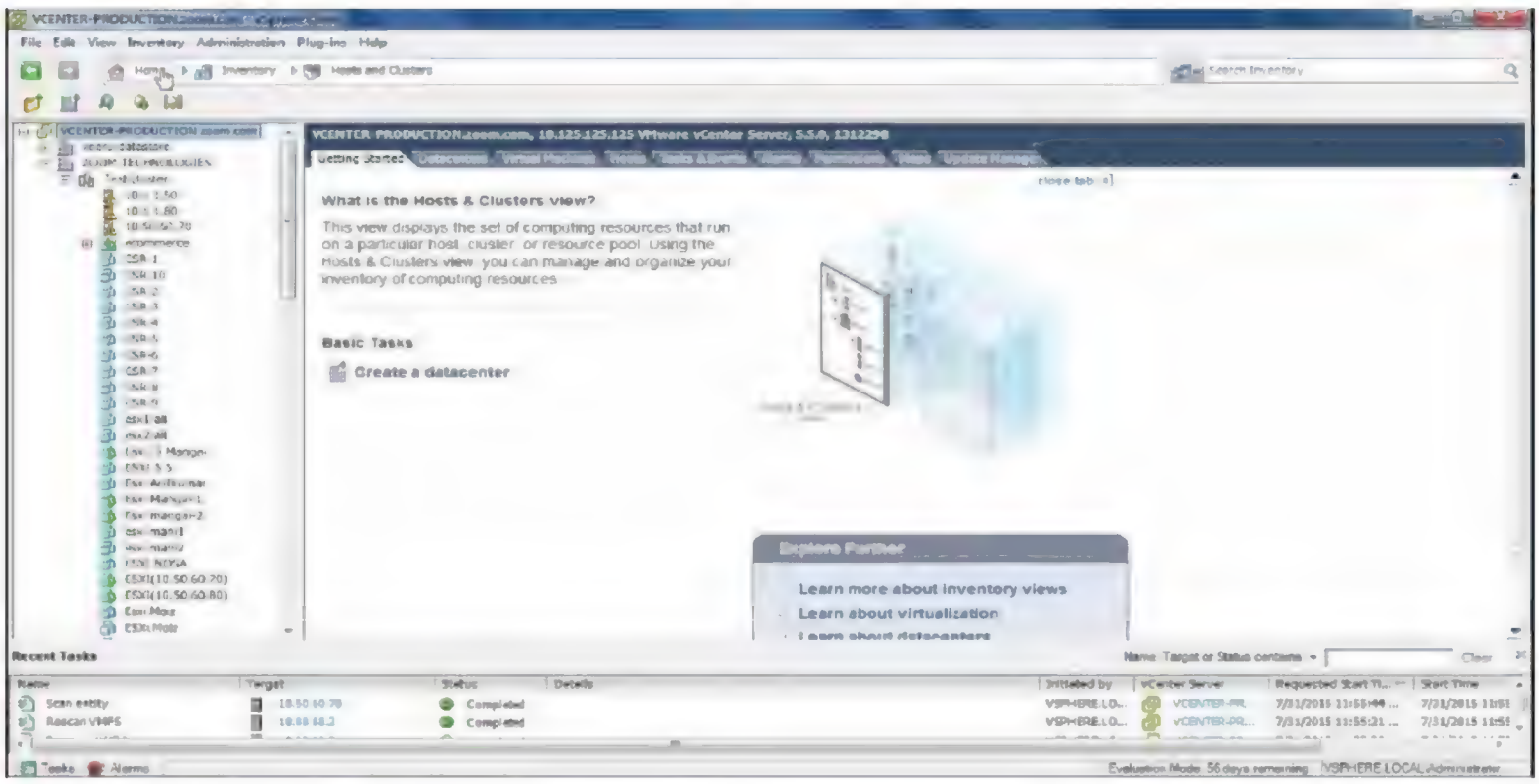


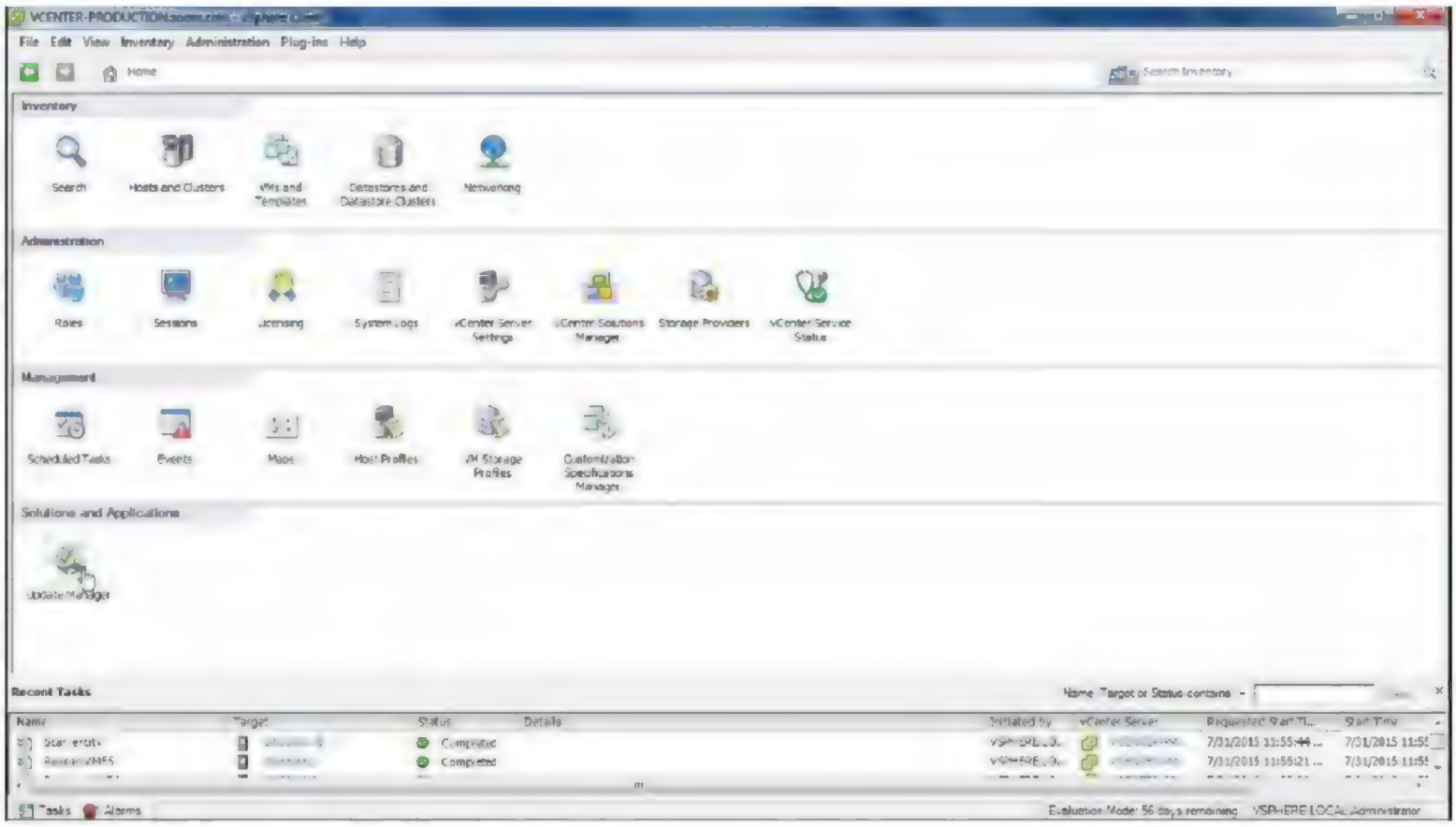
Observe Update Manager Plug-in is installed and is available under Installed Plug-ins, Close

Uploading patches to Update Manager

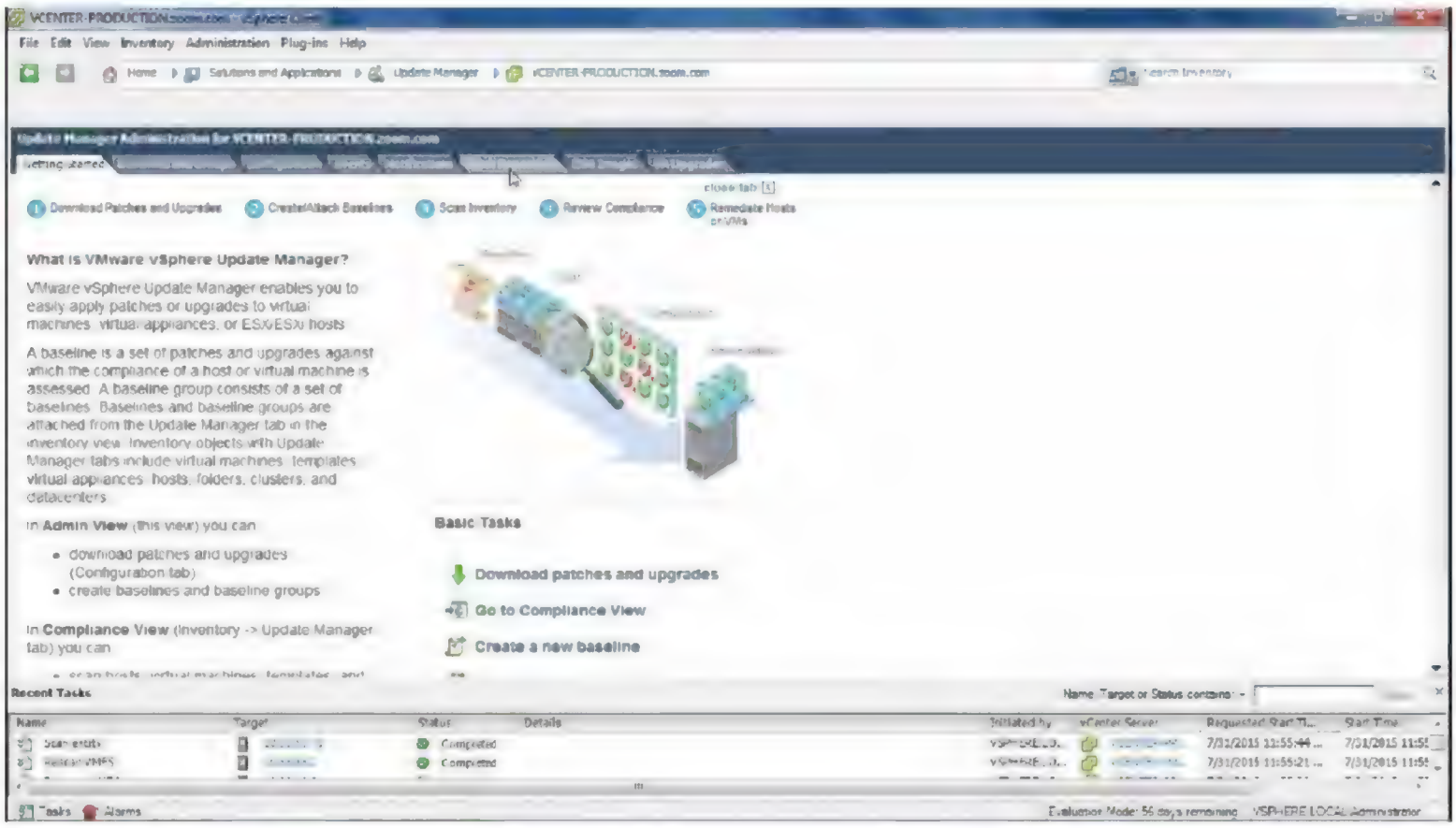
Steps:

1. Click Home on vSphere Client

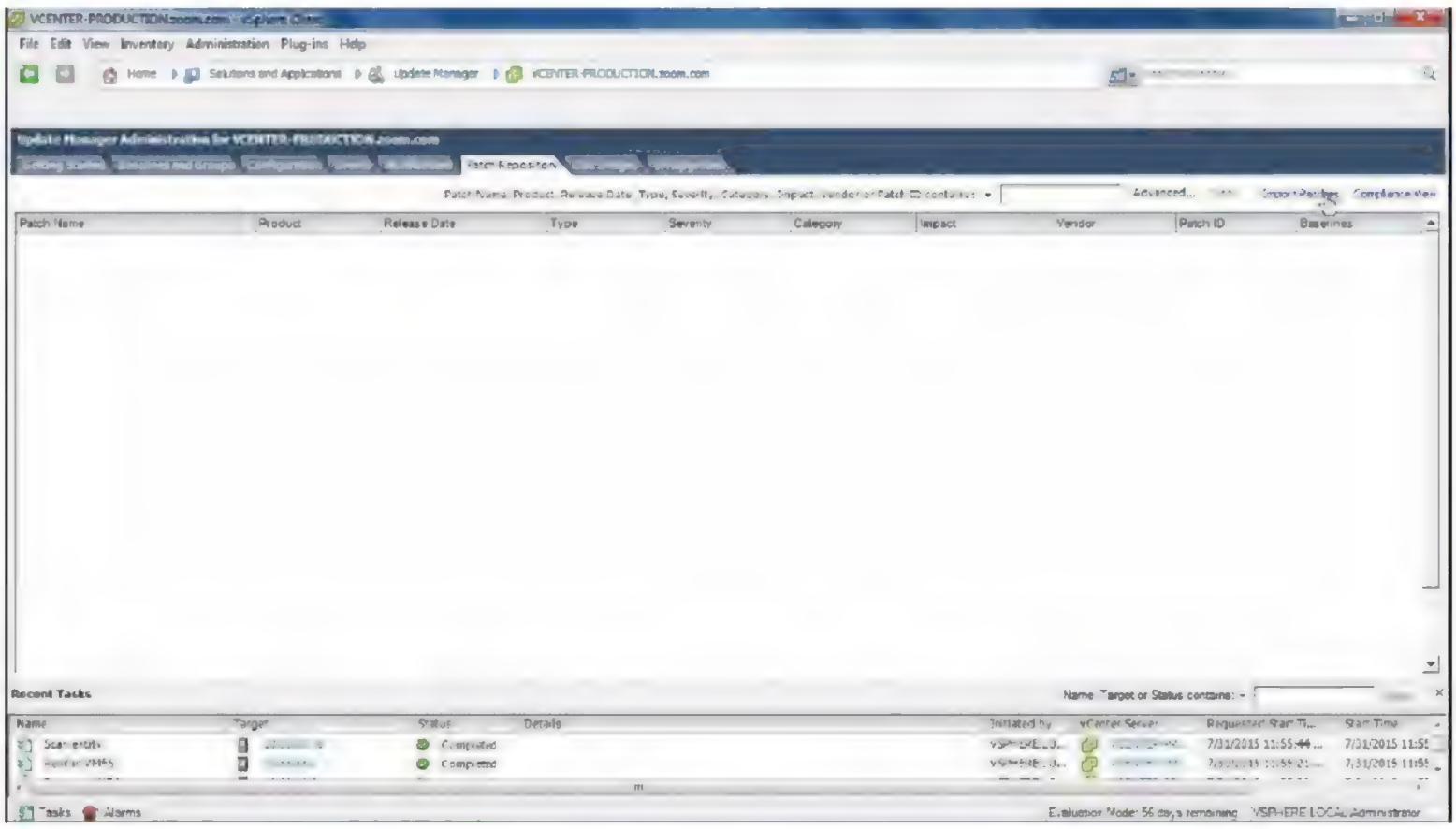




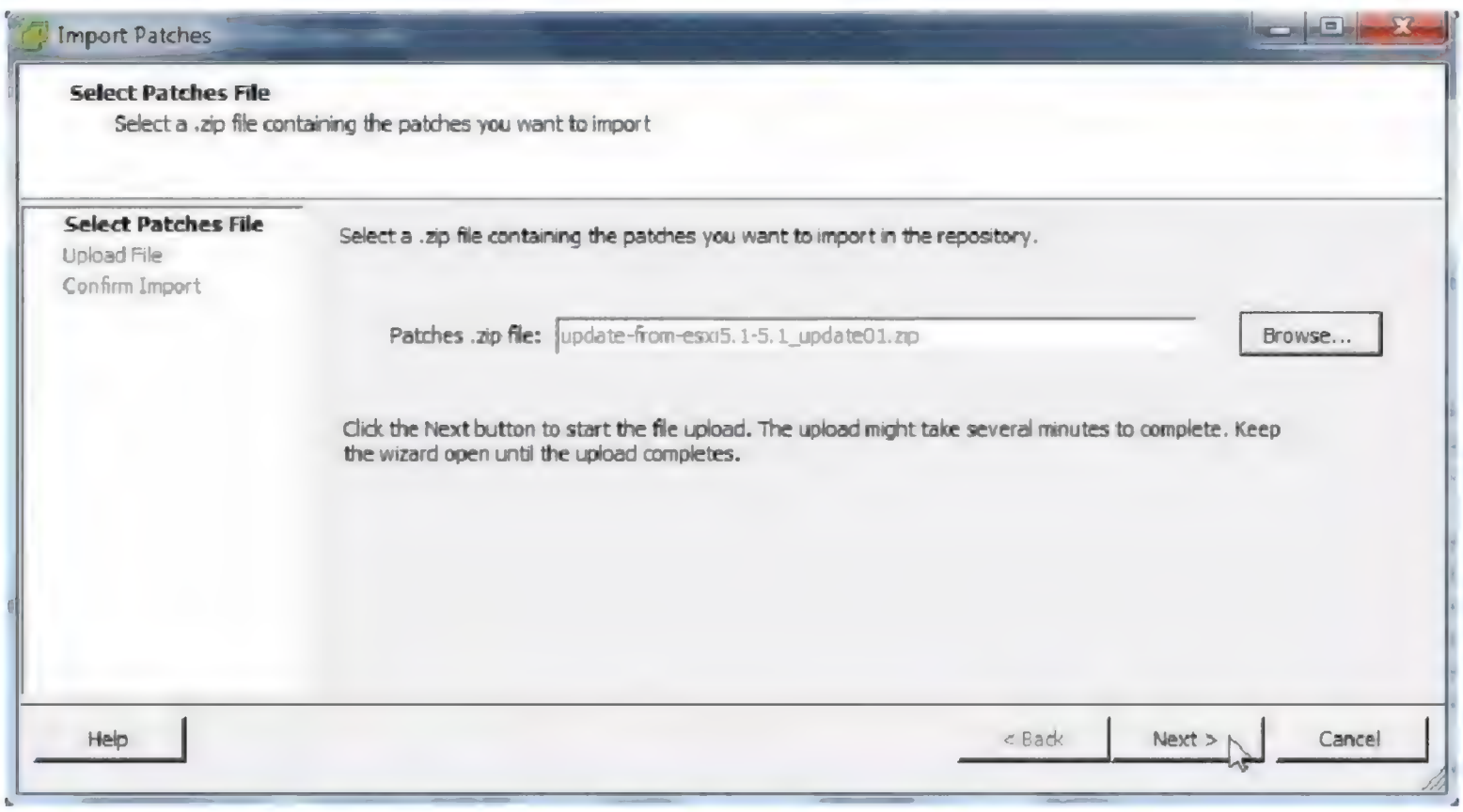
2. Click on Update Manager under Solutions and Applications



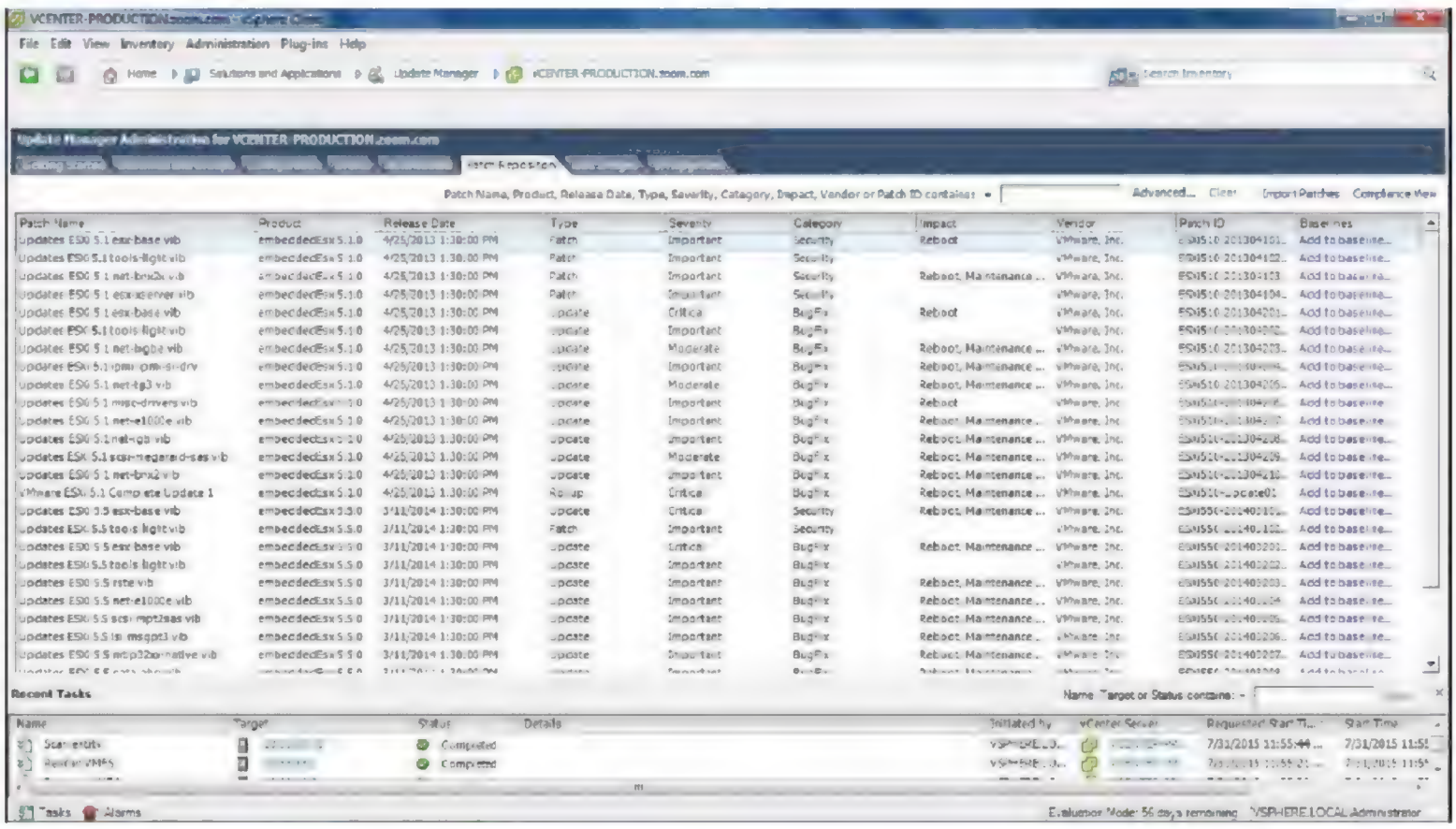
3. Click Patch Repositories



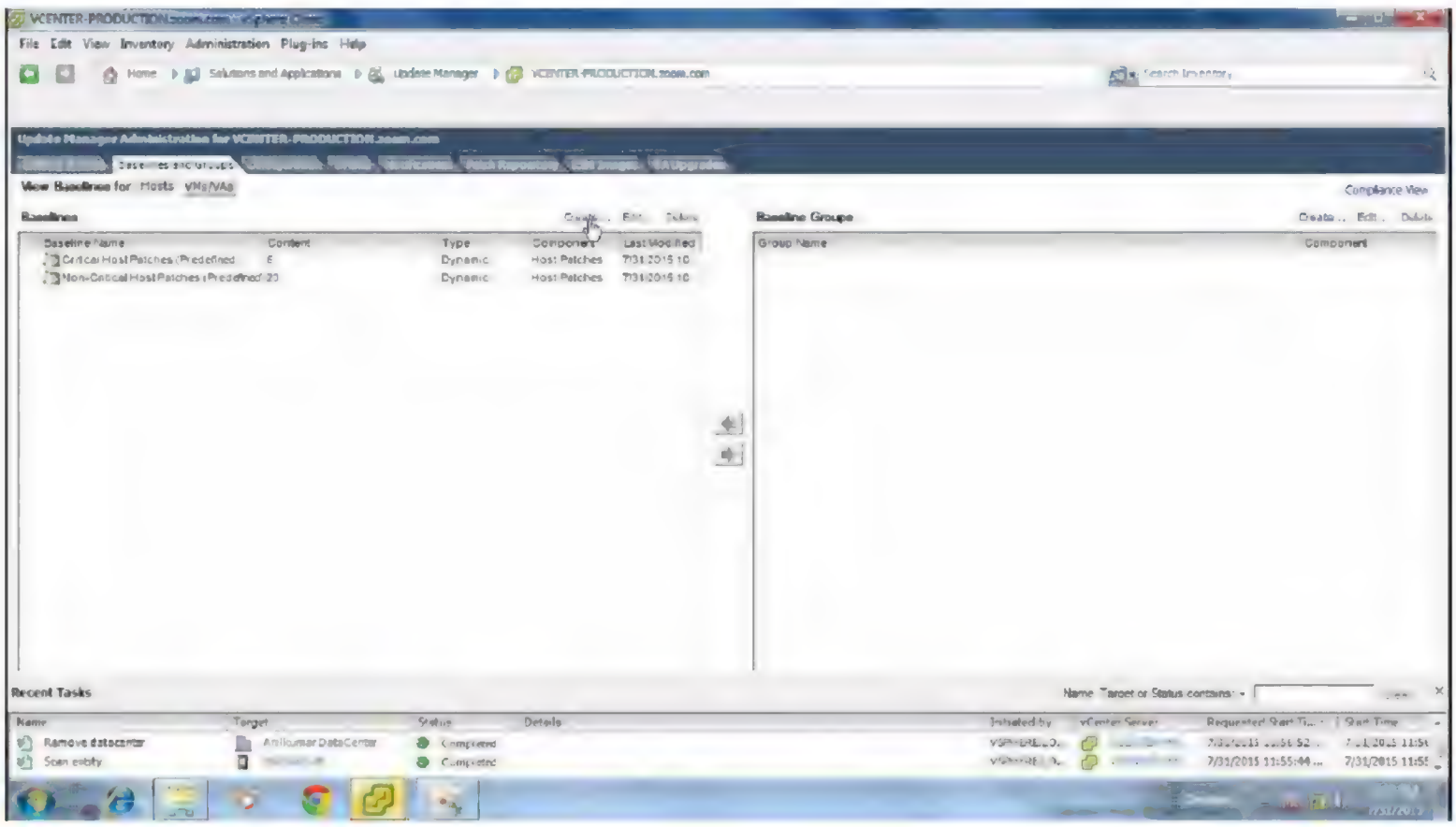
4. Click Import Patches



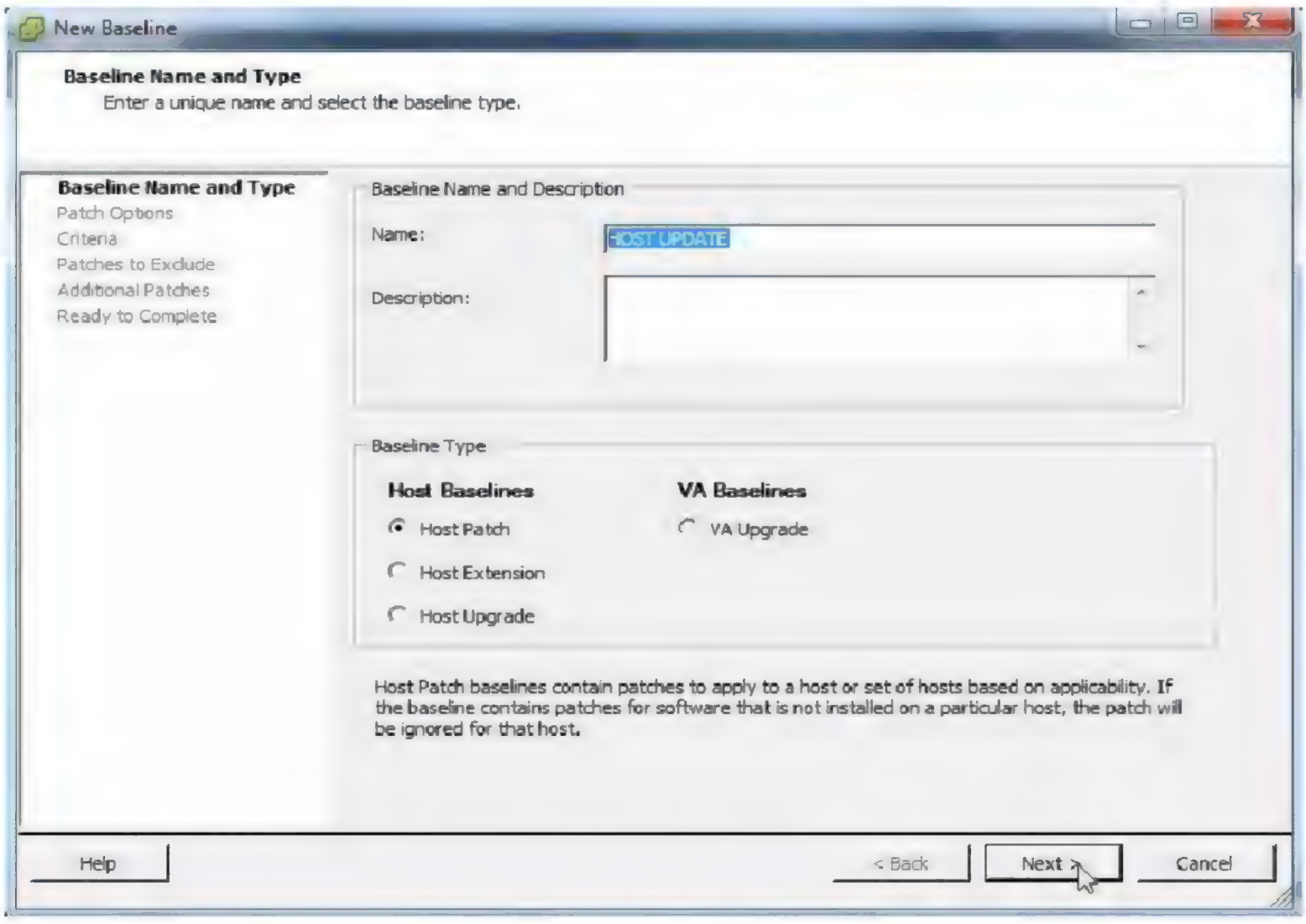
5. Browse your system and select the patch zip file – Next to continue



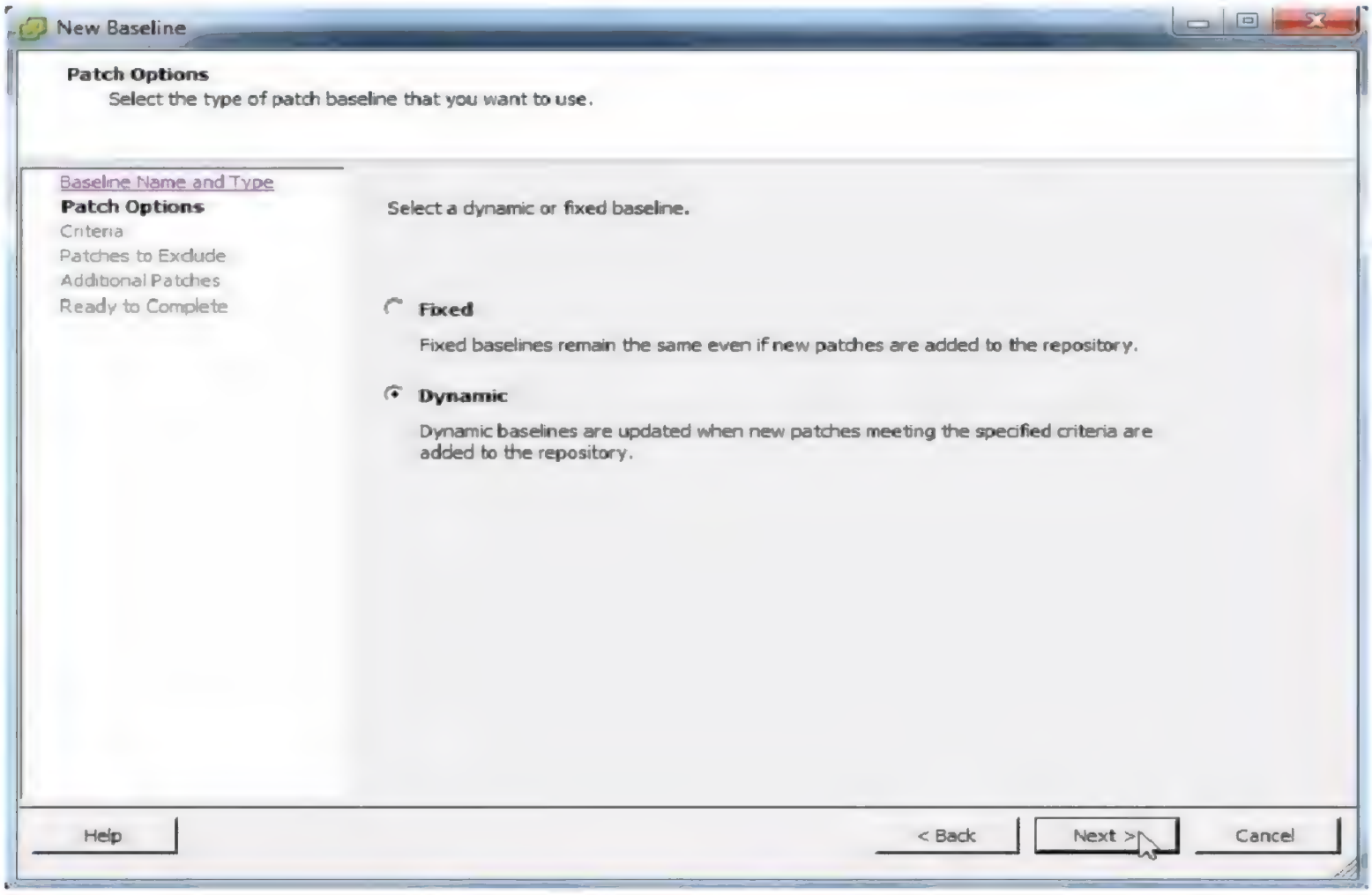
6. Once patches are imported click on Baselines and Groups tab



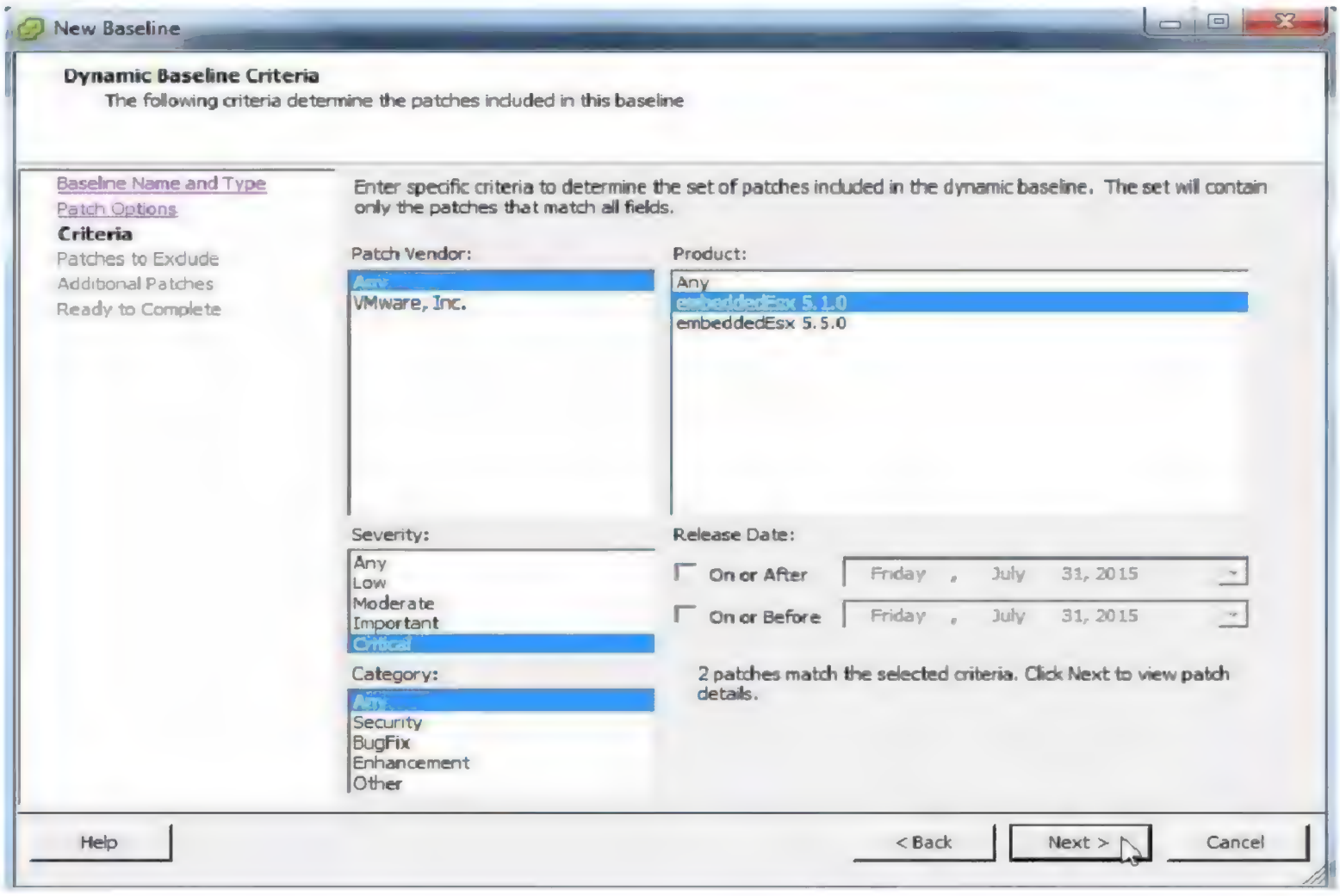
7. Click on Create, to create a baseline



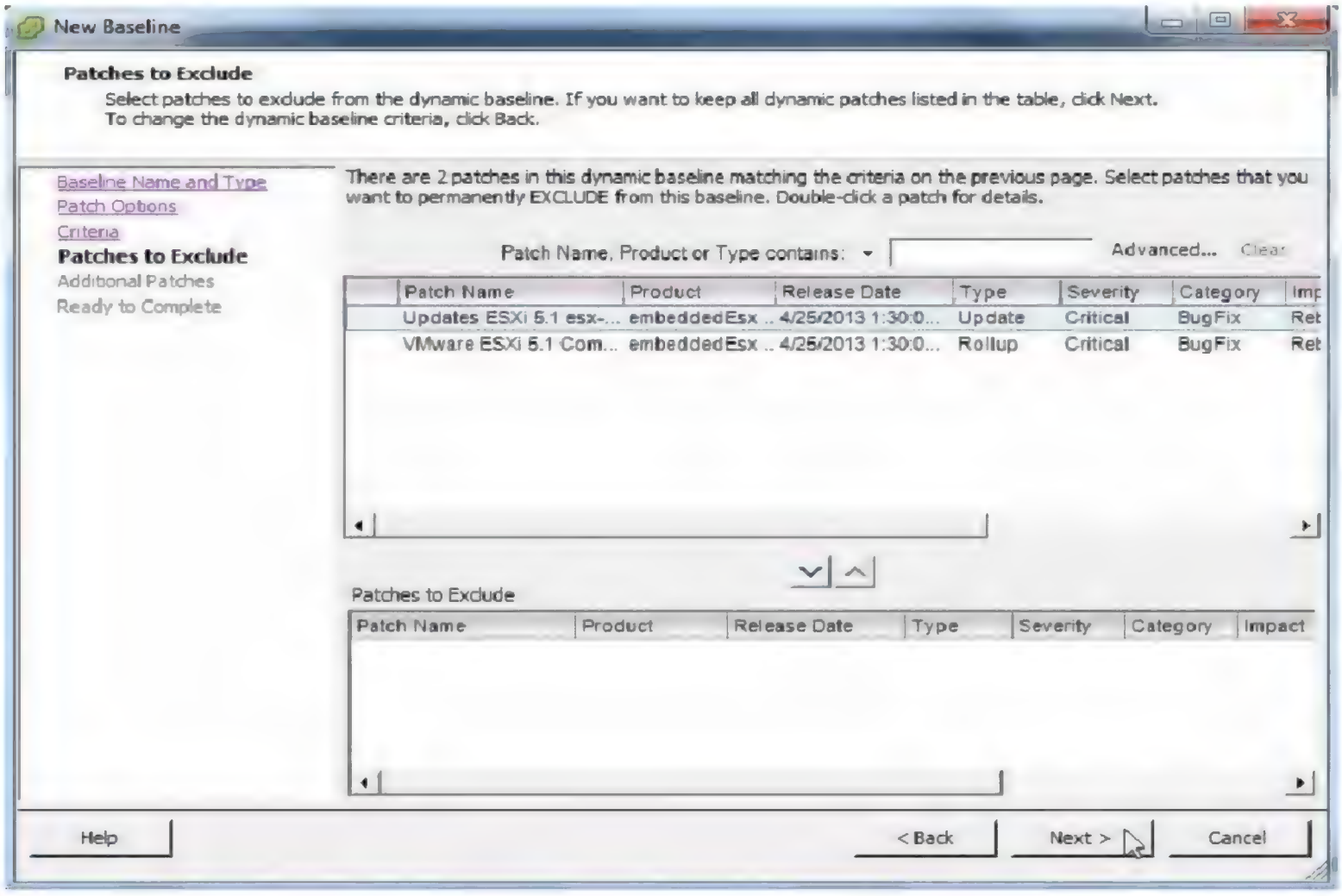
8. Give a name to Baseline - Next to continue



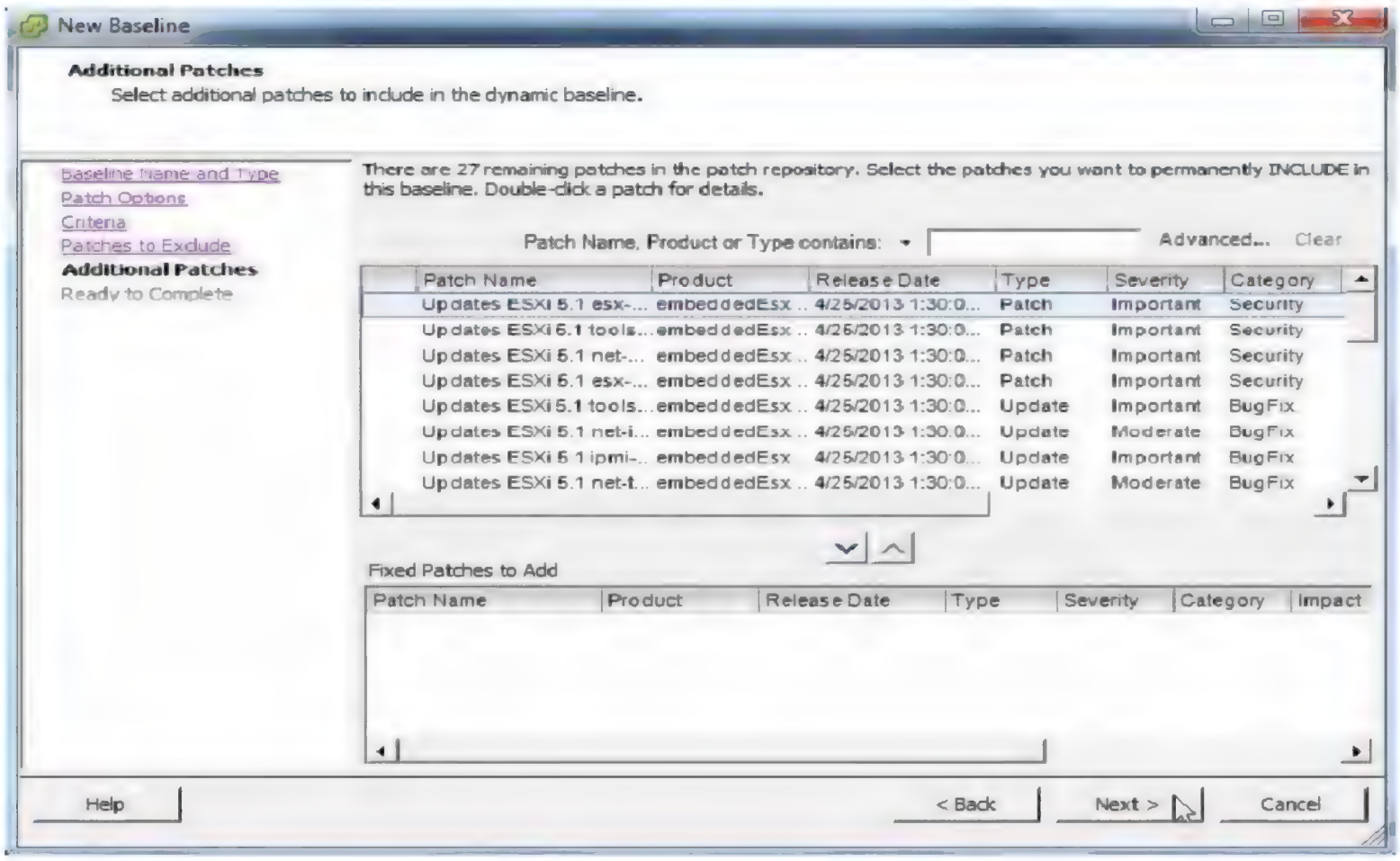
9. Select Fixed/Dynamic - Next



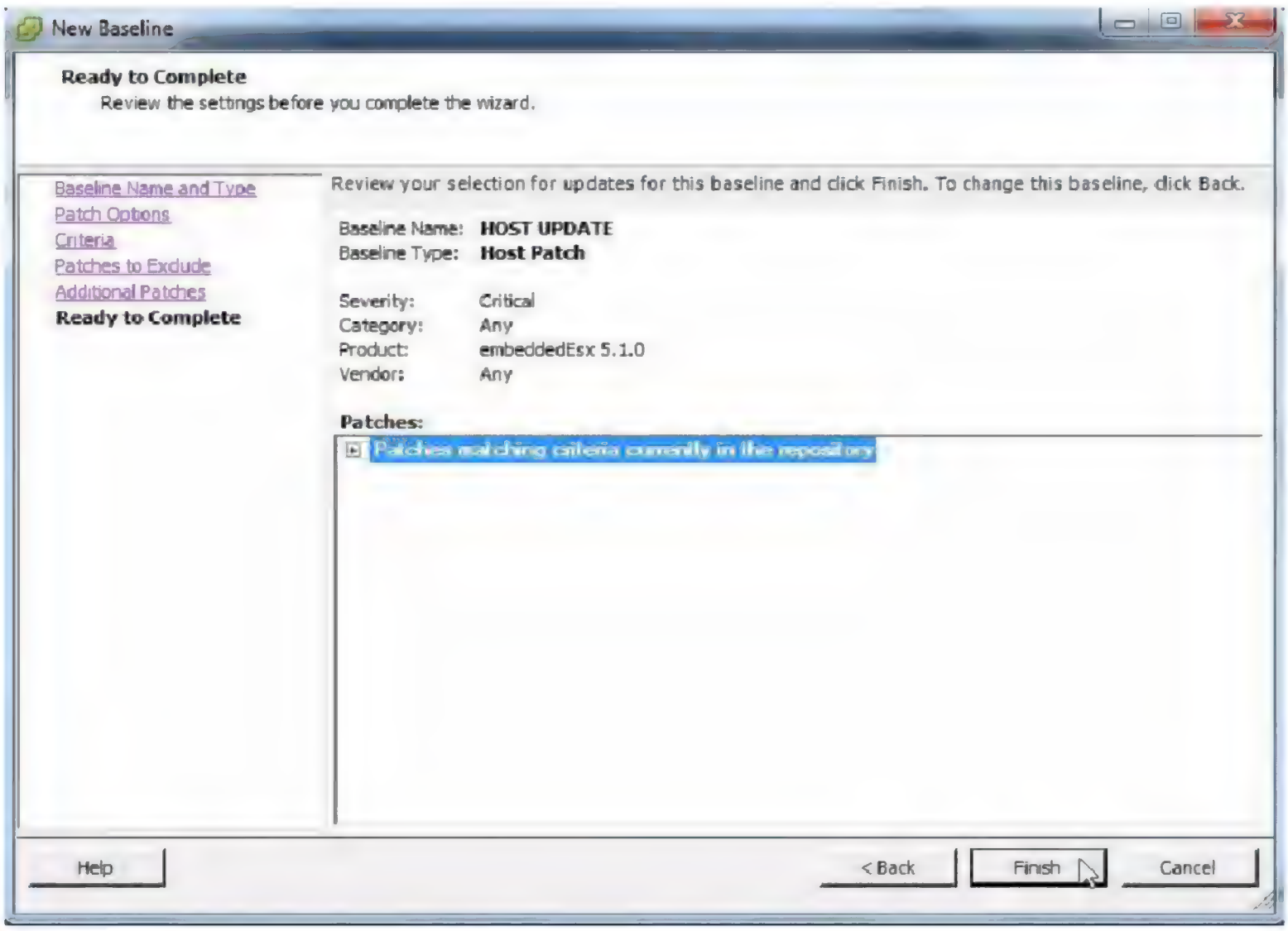
10. Select the Baseline Criteria - Next to continue



11. Select the patch to exclude - Next

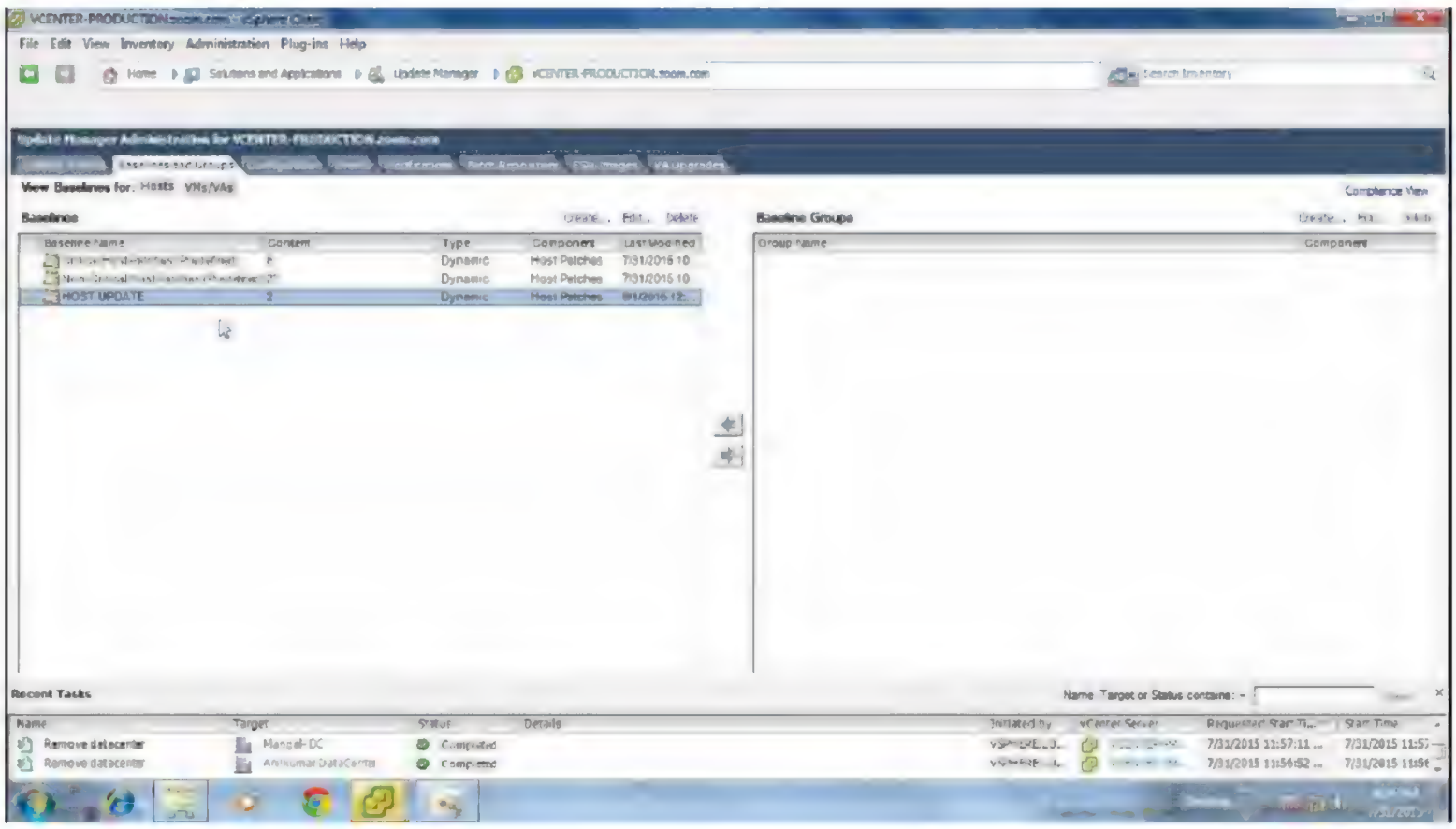


12. Select the Patches to include - Next to continue



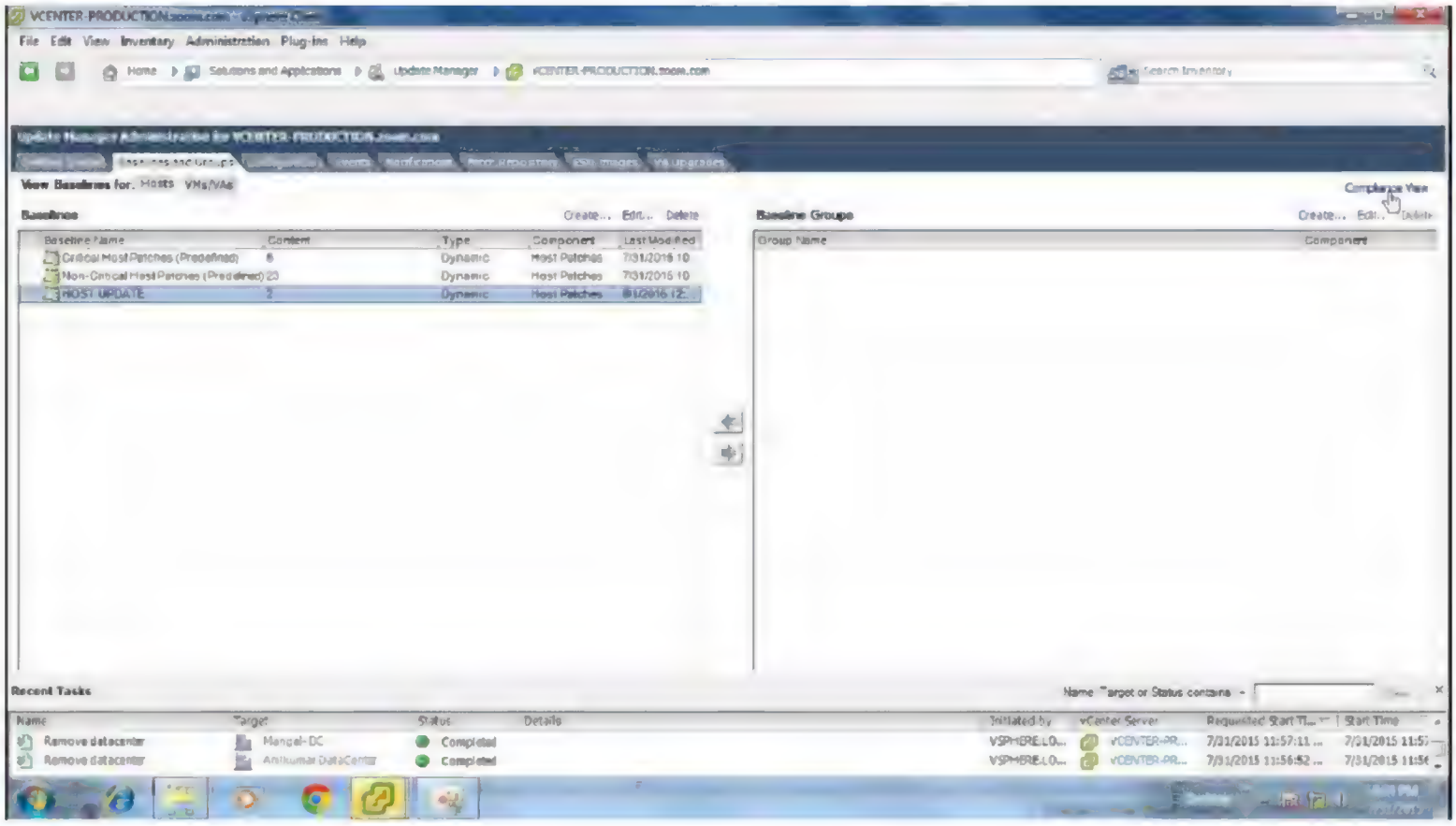
13. Finish to complete the creation of a patch baseline

Verification:



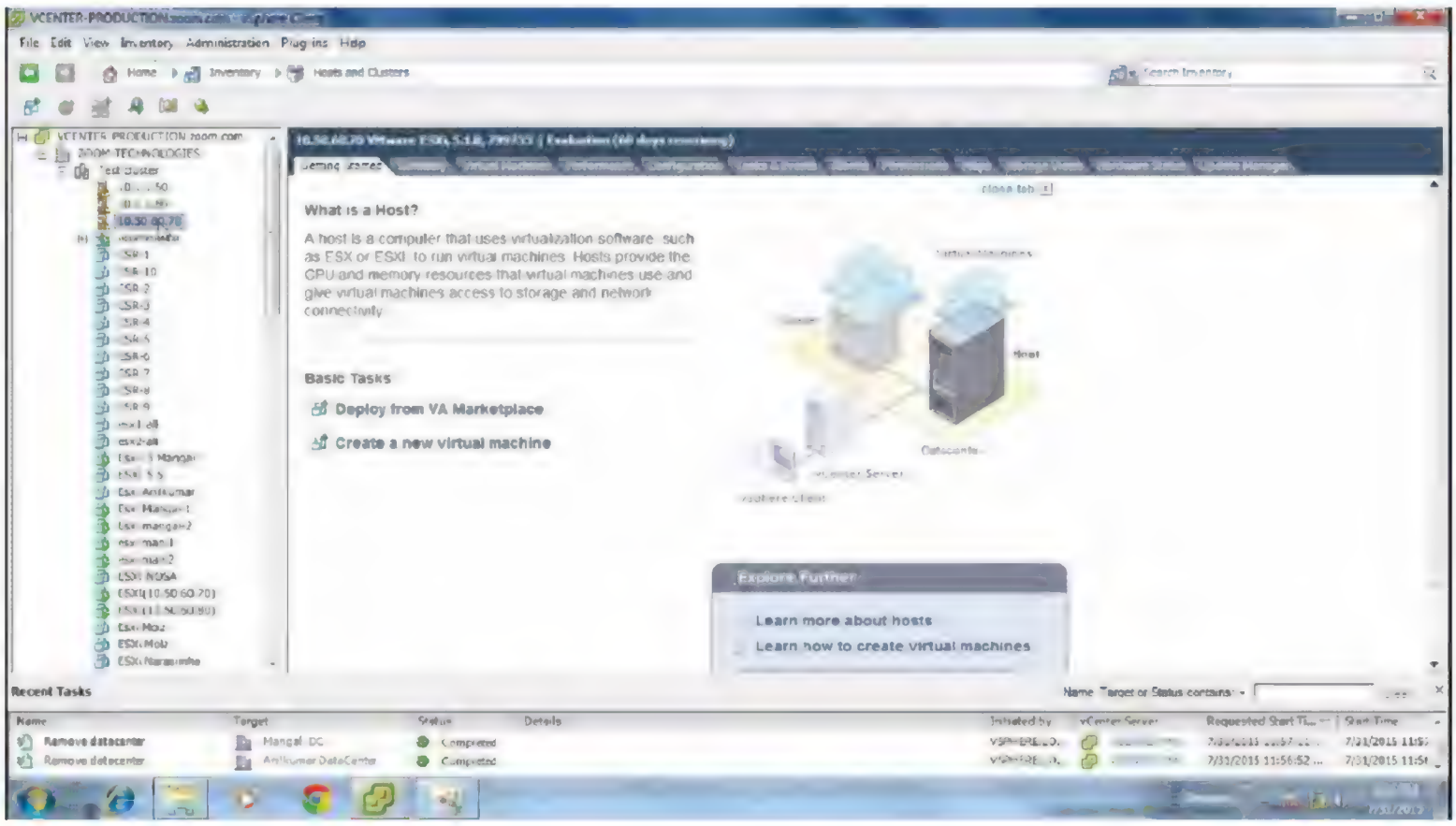
Observe a New Baseline is created

Installation of a Patch on an ESXi Host

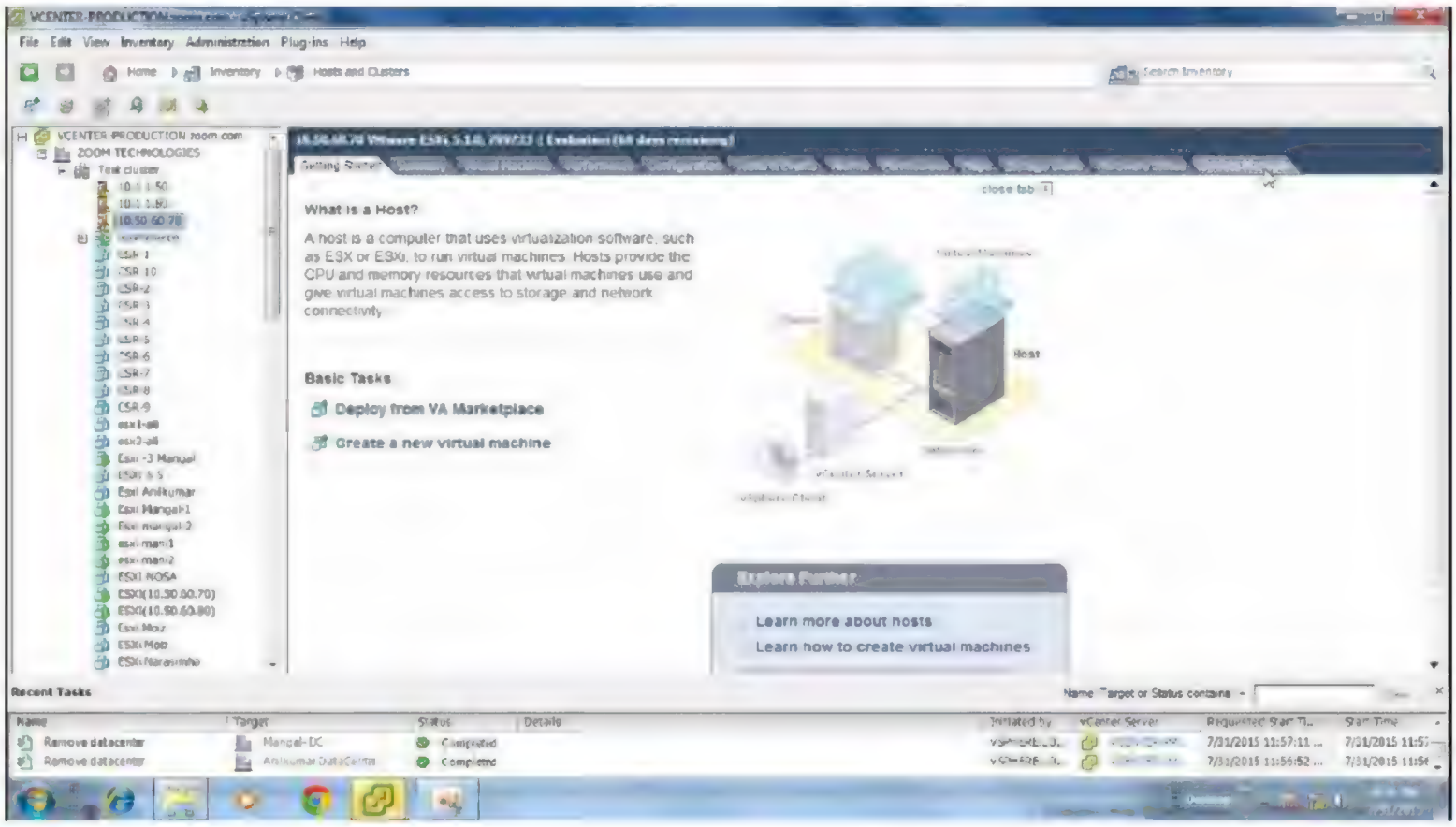


Steps:

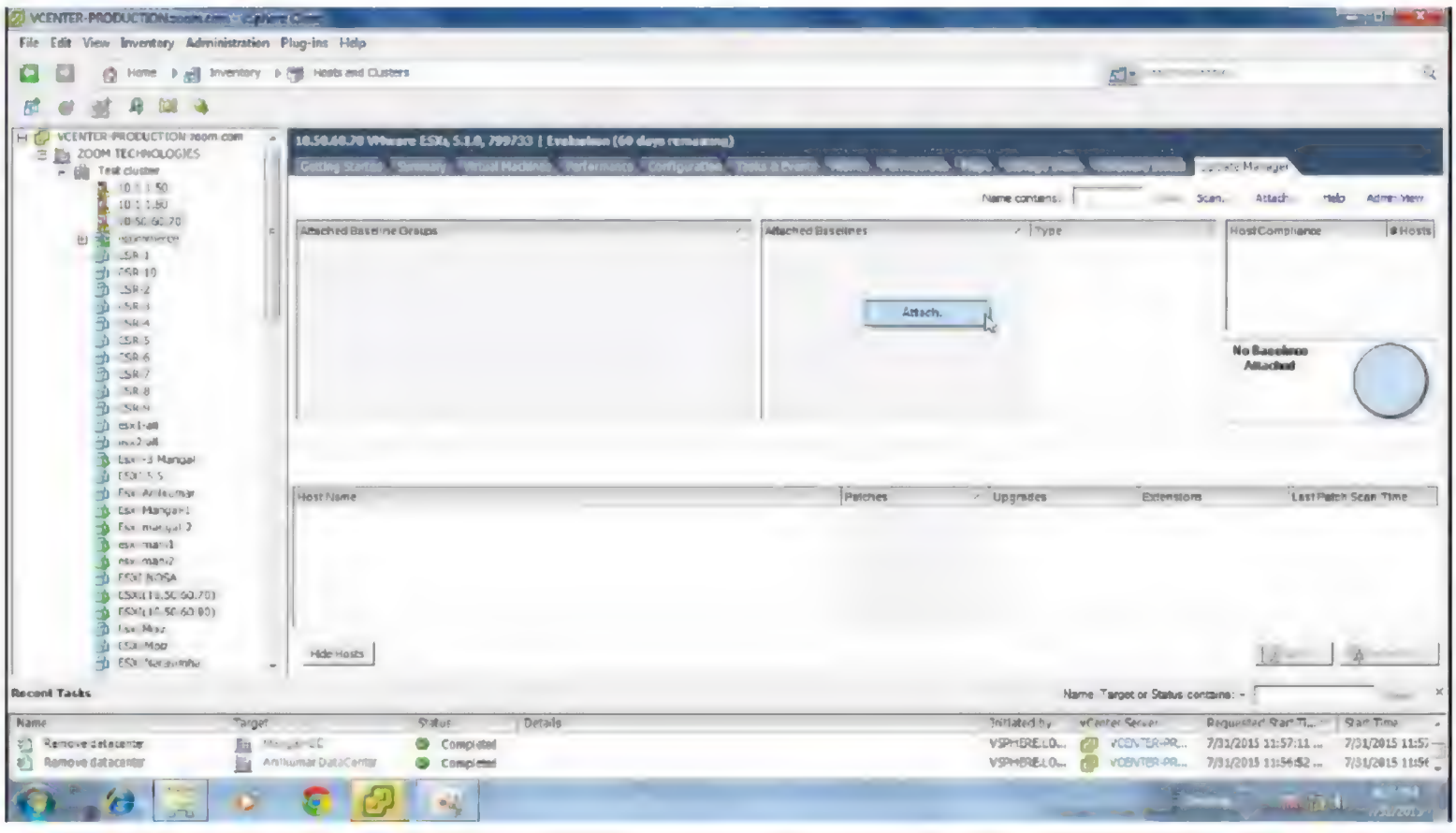
1. Click Compliance View



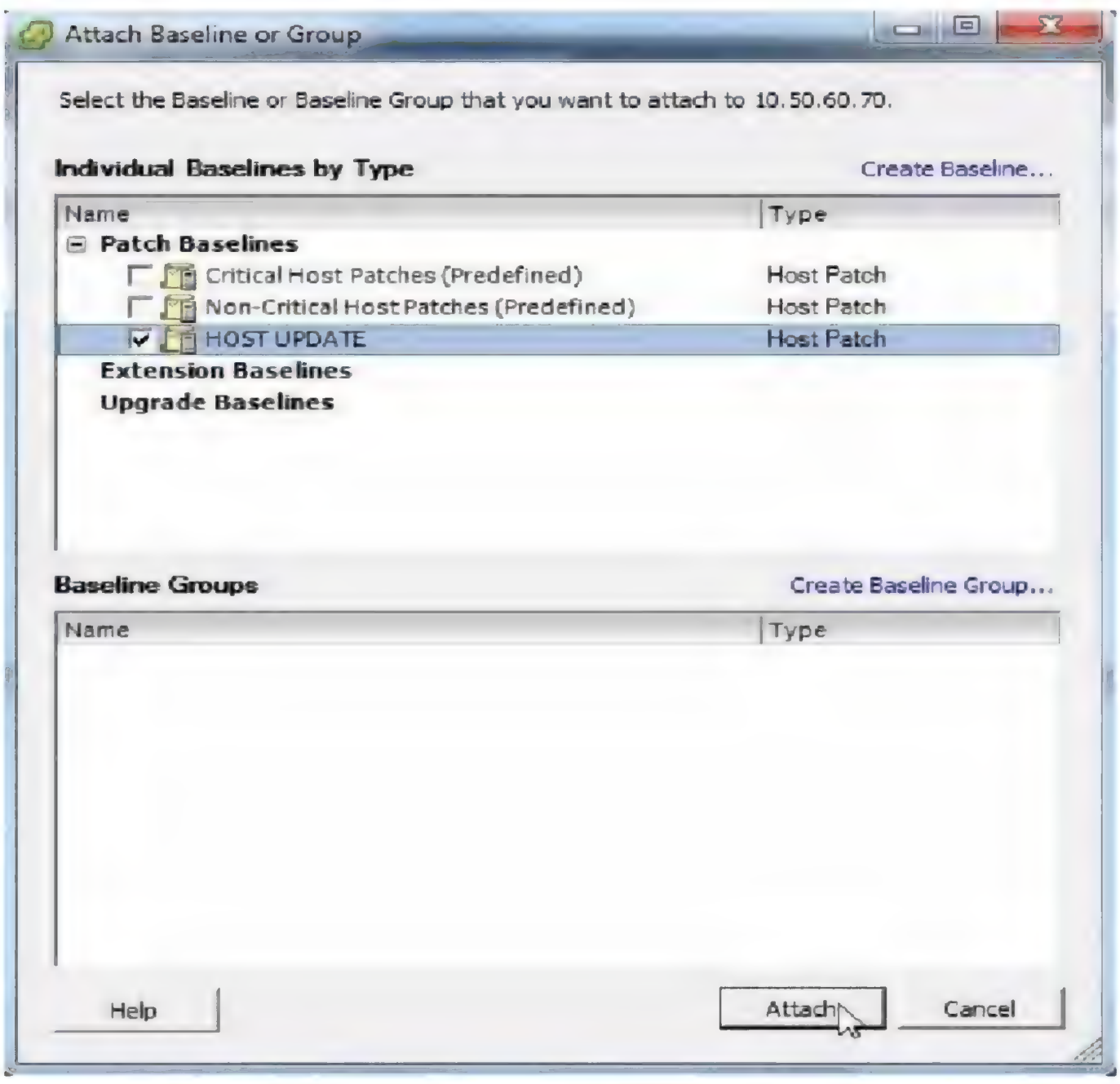
2. Select the Host



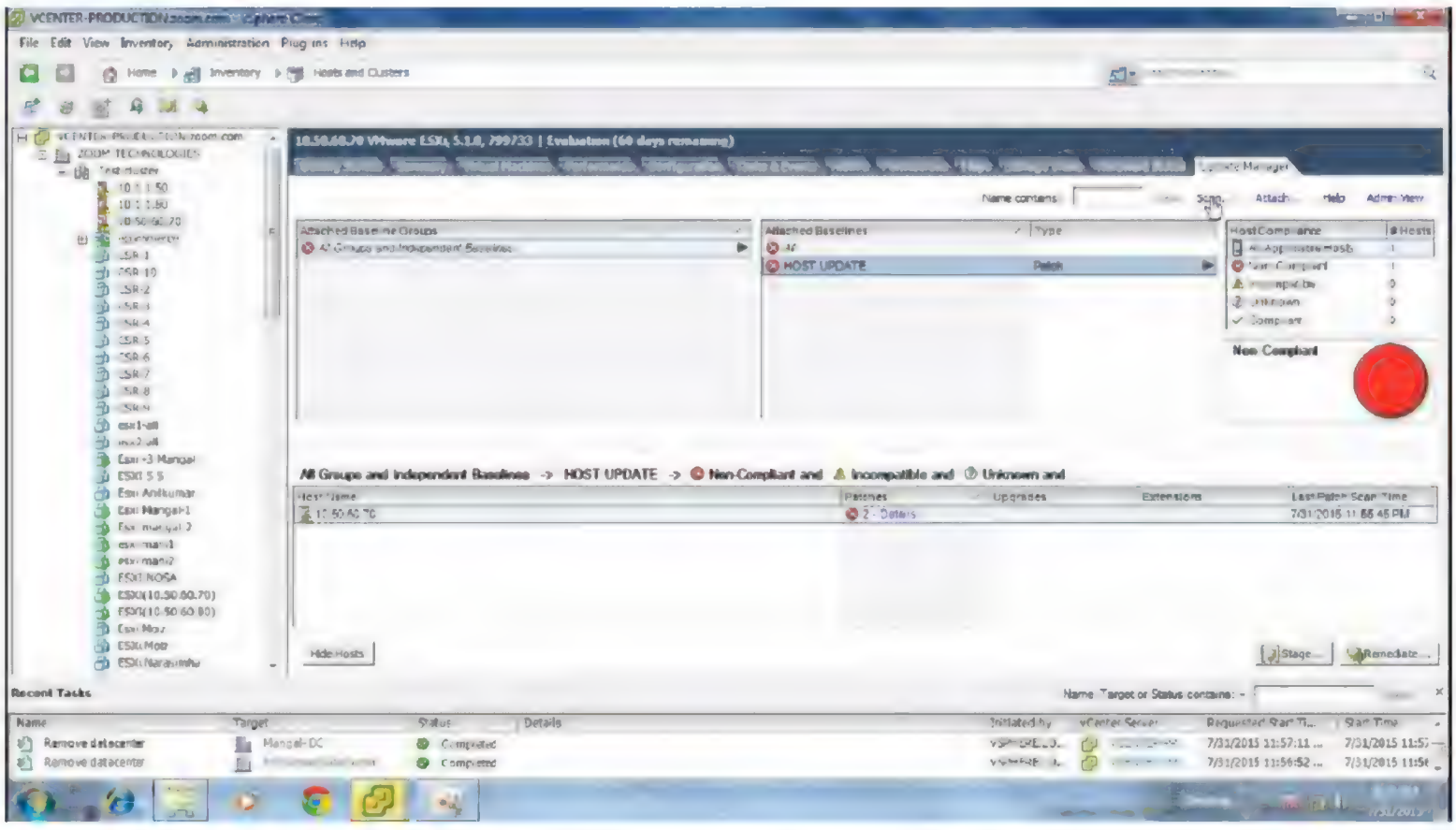
3. Click Update Manager Tab



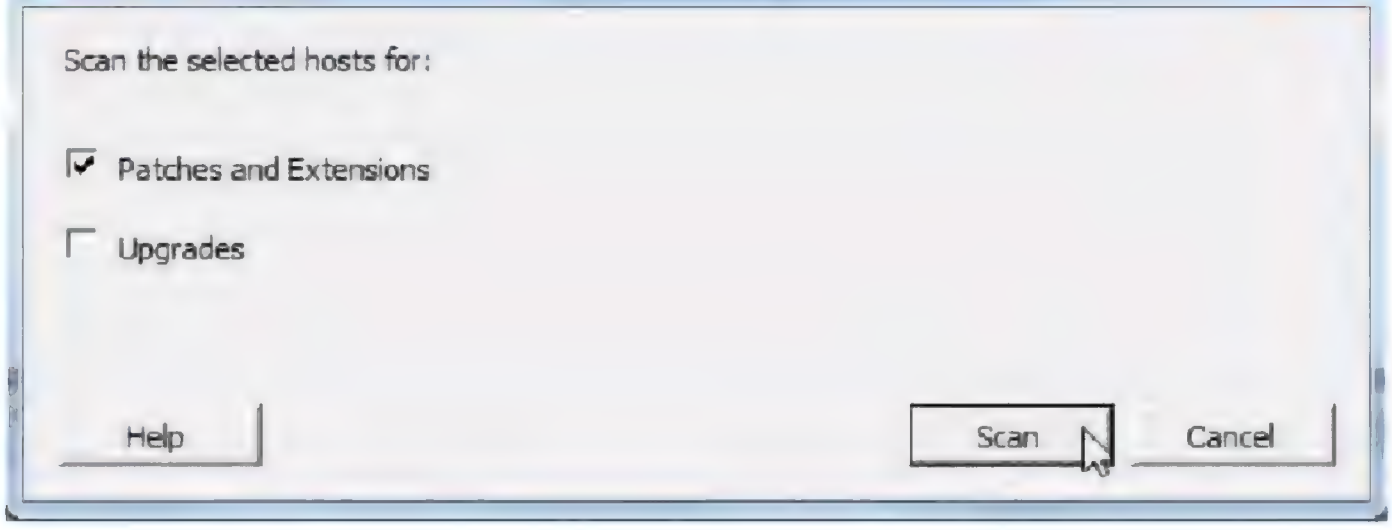
4. Right Click Attach



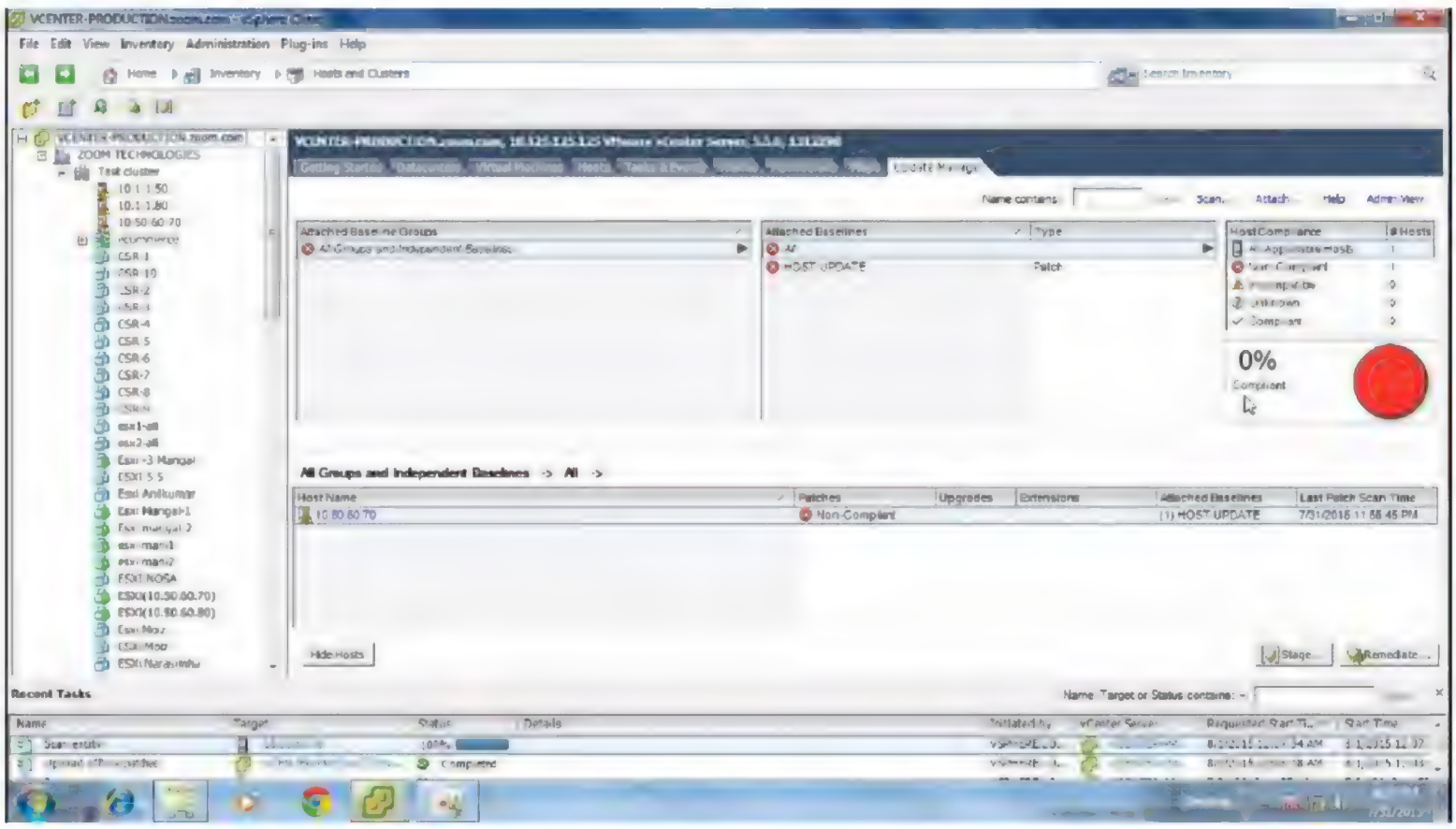
5. Select a Baseline to Attach



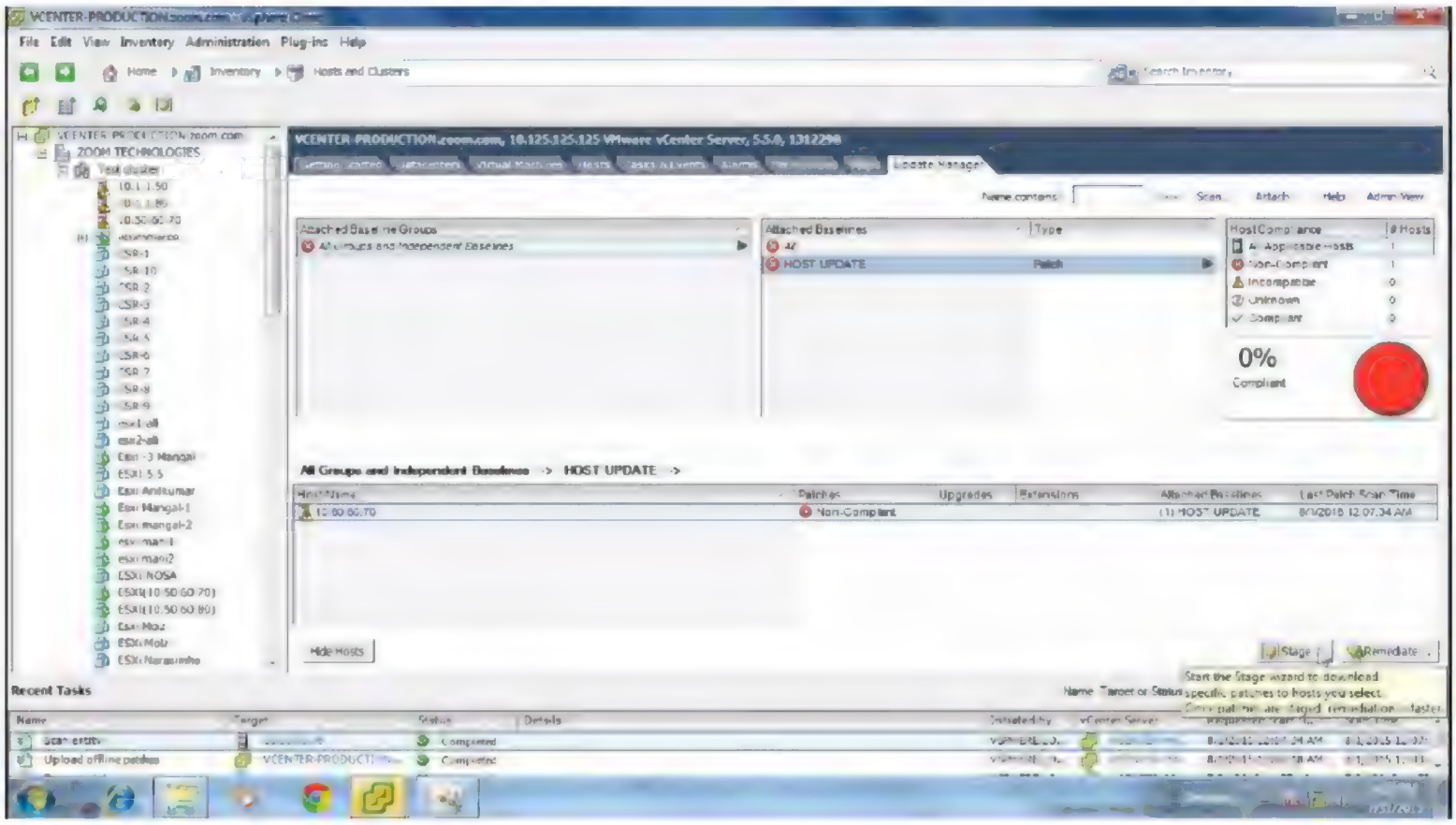
6. Scan



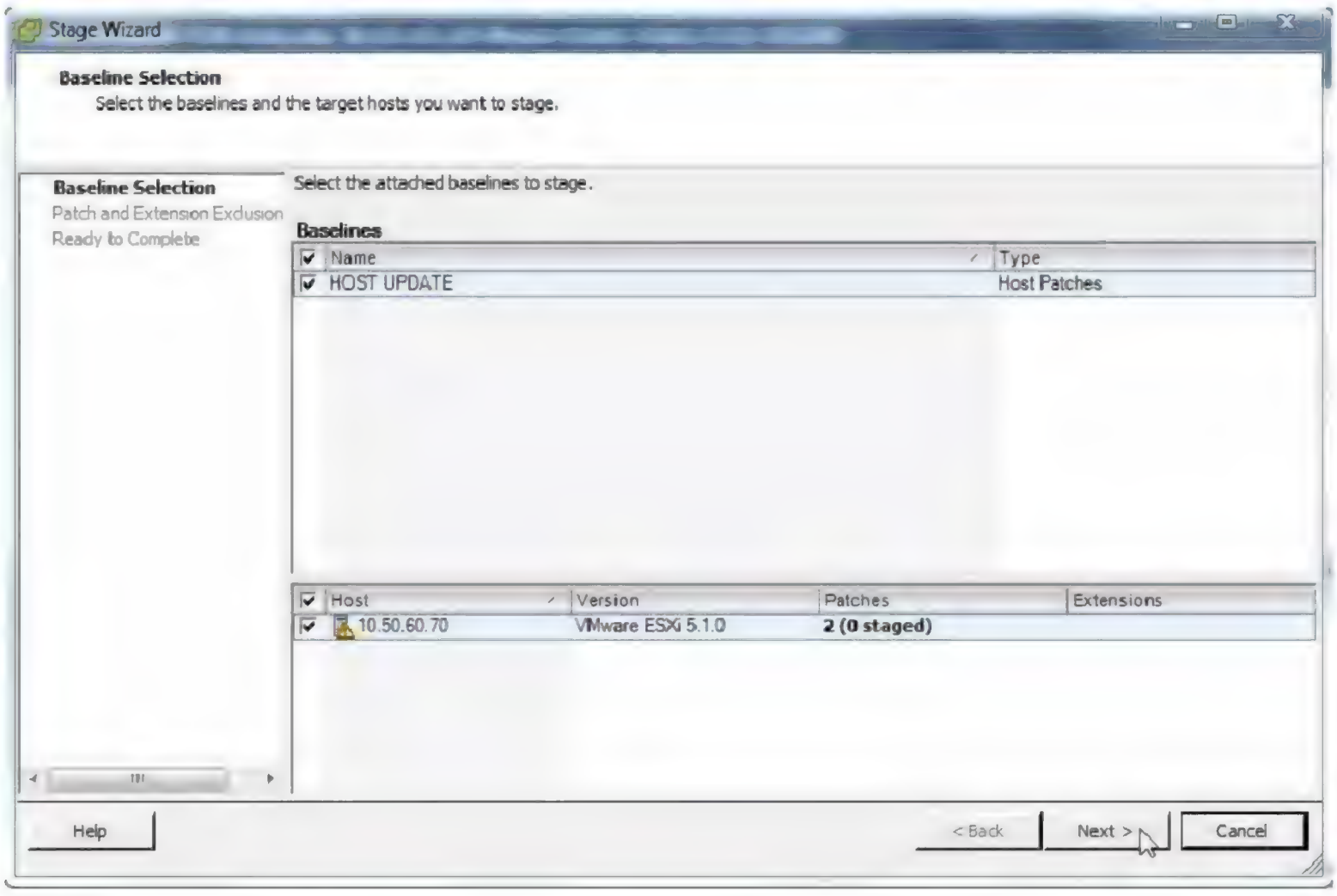
7. Select Patches and Extensions, Scan to continue



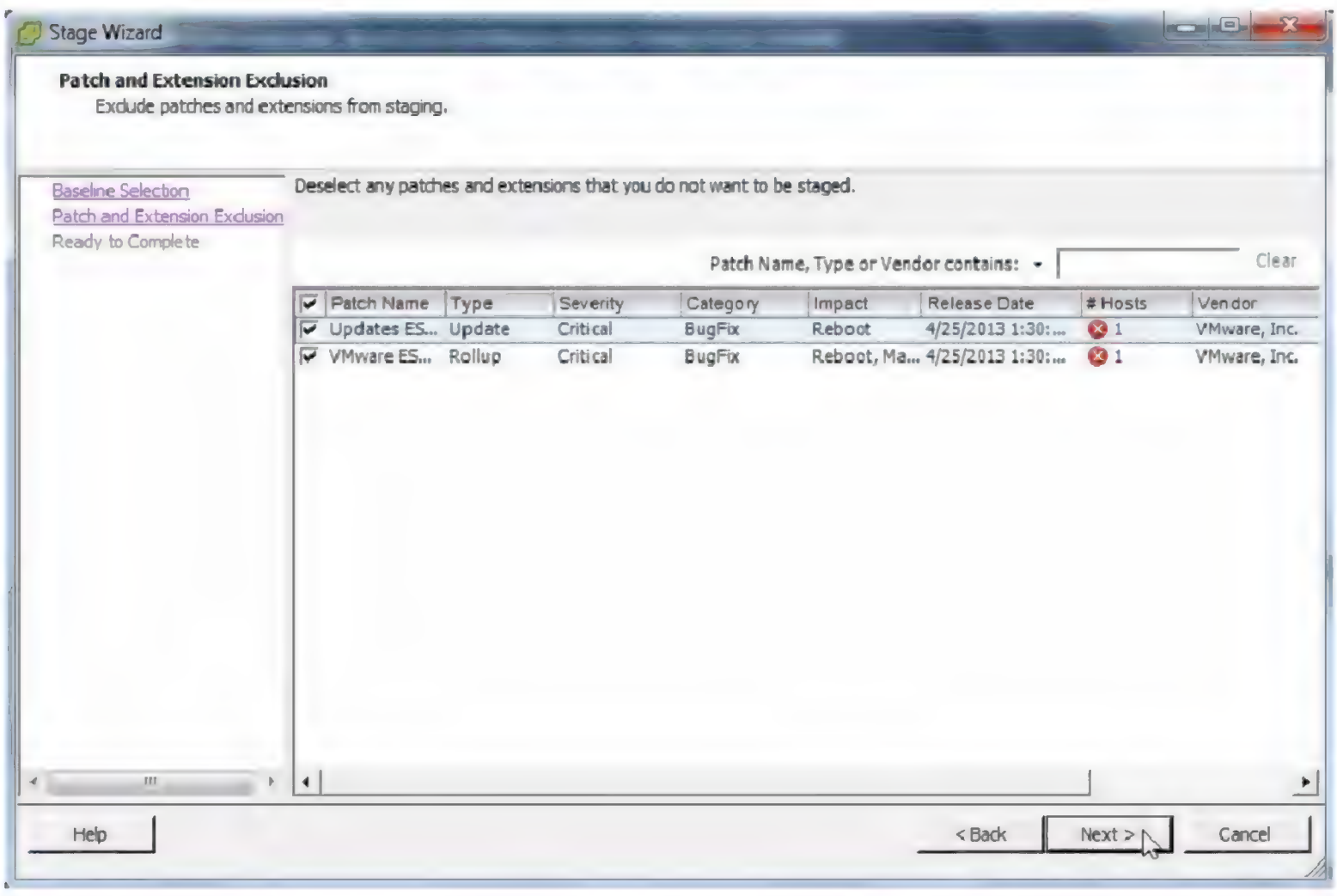
8. Review Compliance, Host is Non-Compliant



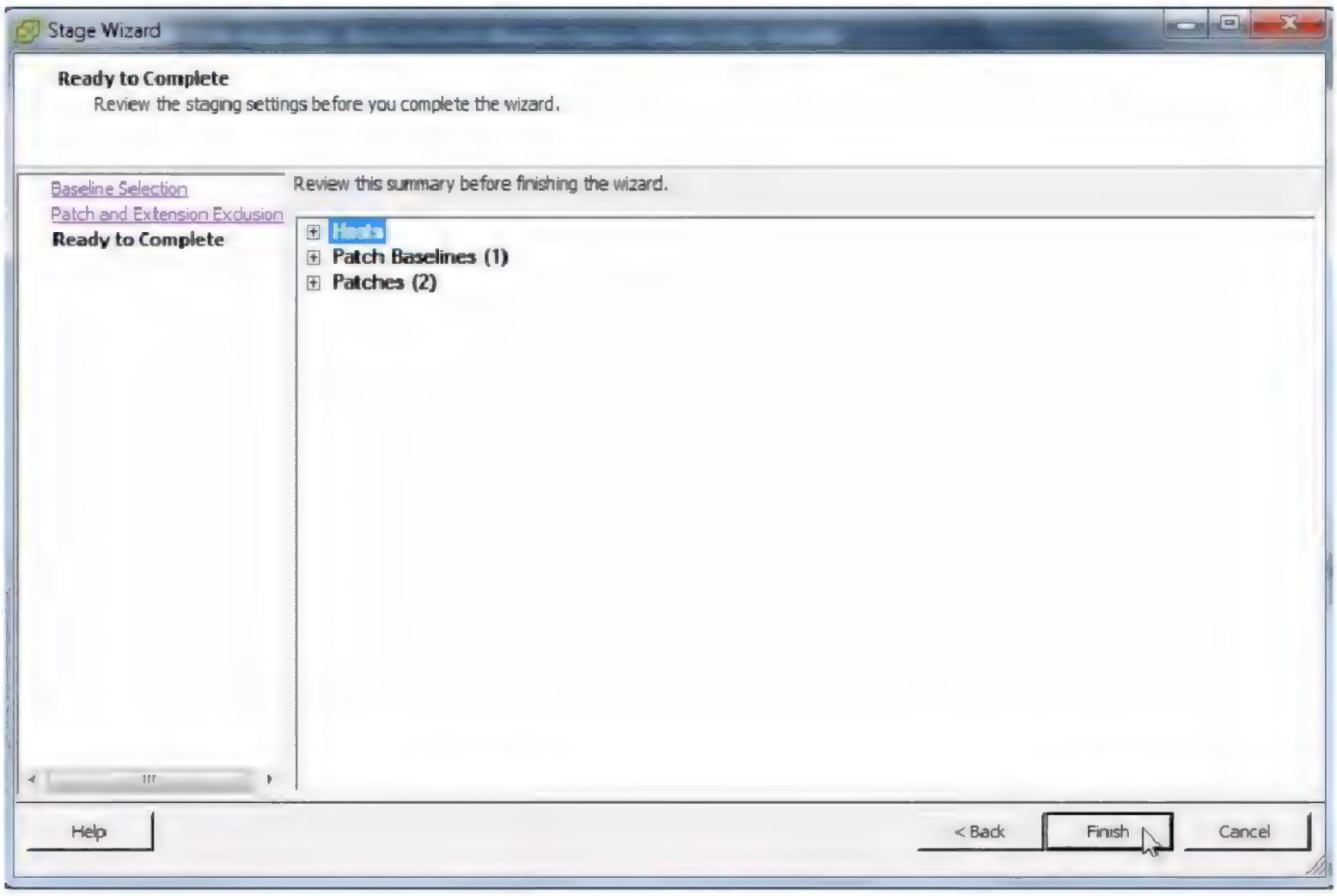
9. Click Stage to stage patches



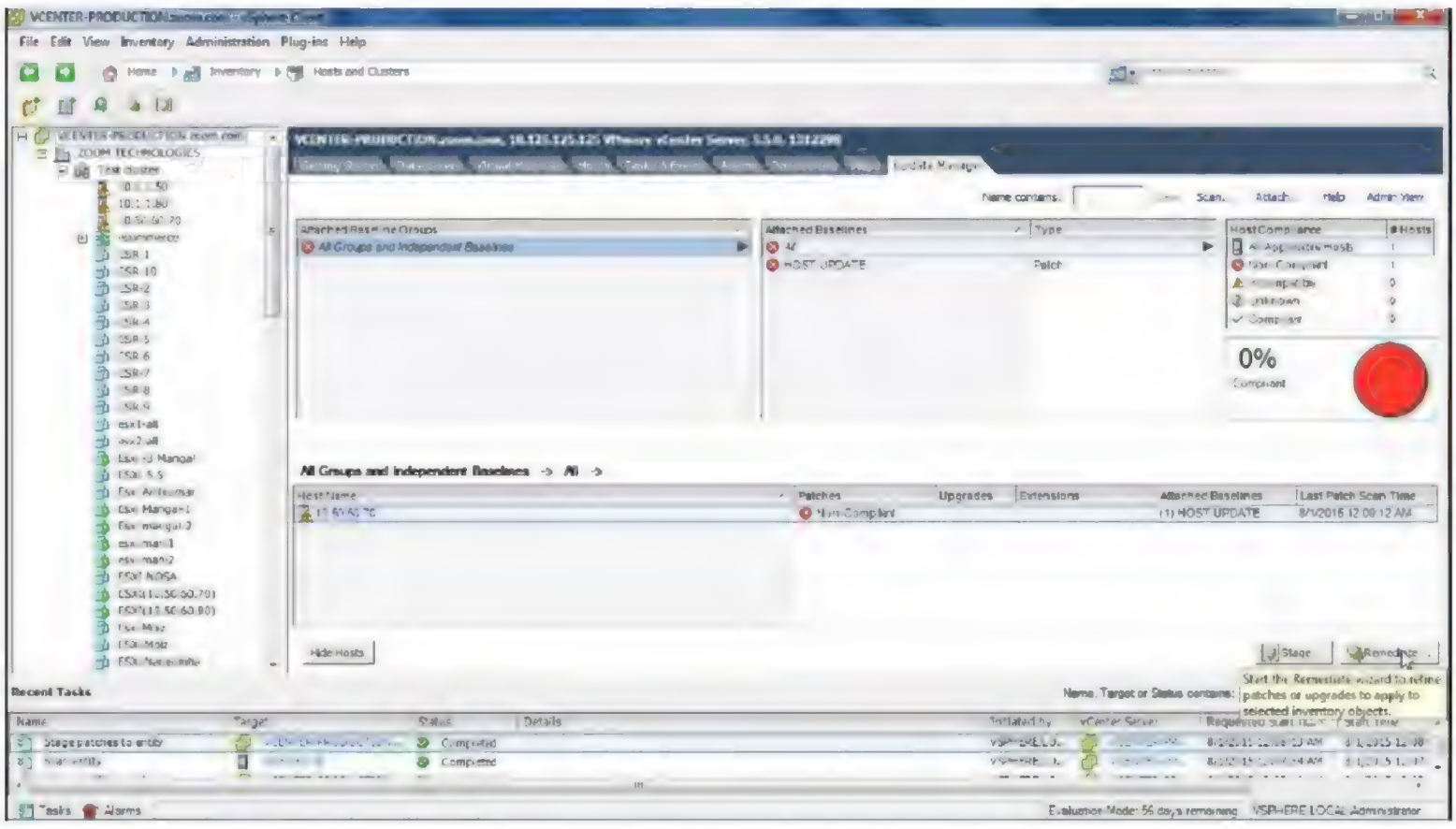
10. Select the attach baseline, Next to continue



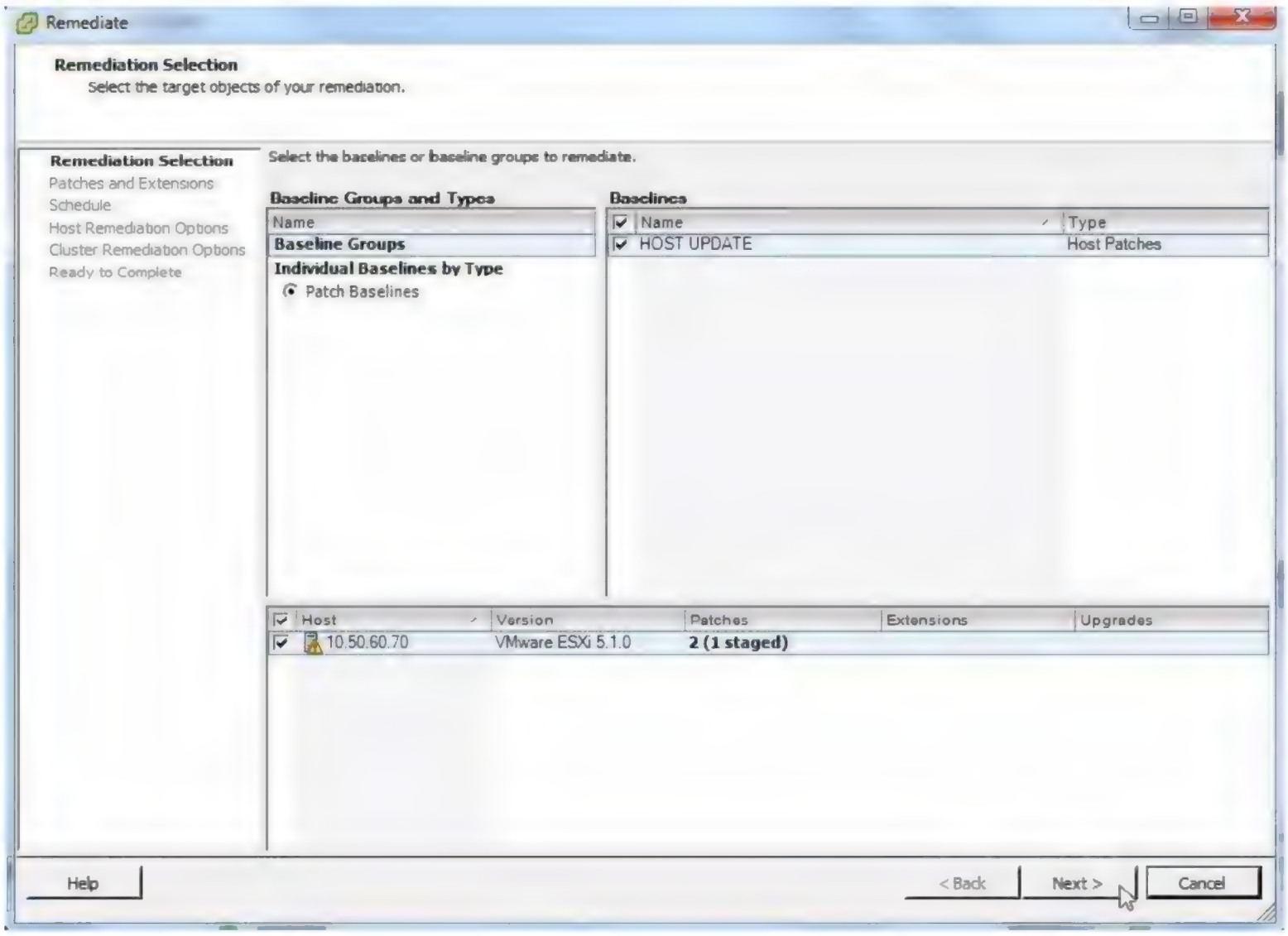
11. Deselect any patches to exclude from staging, Next to continue



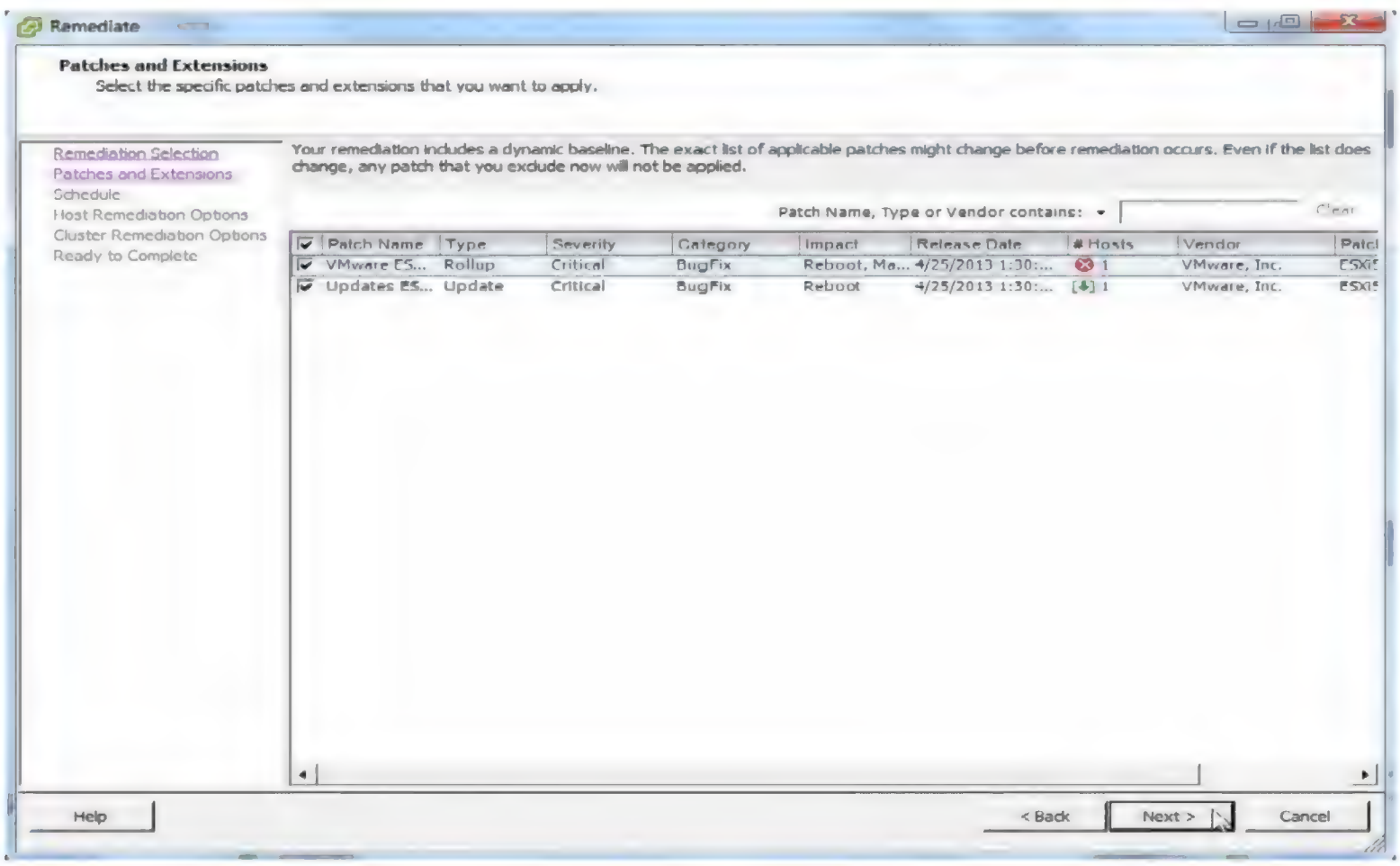
12. Finish to stage the patches on Host



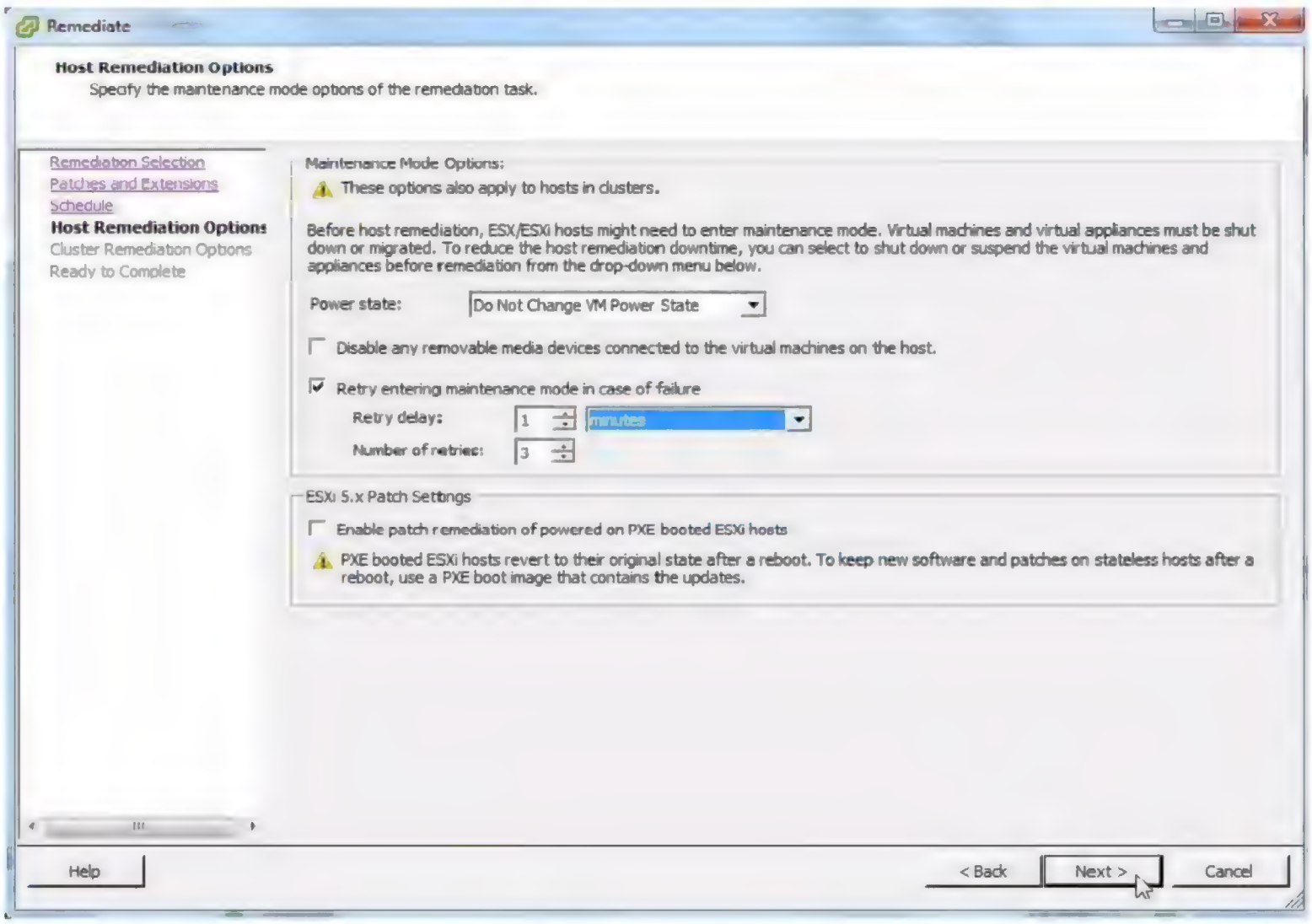
13. Remediate



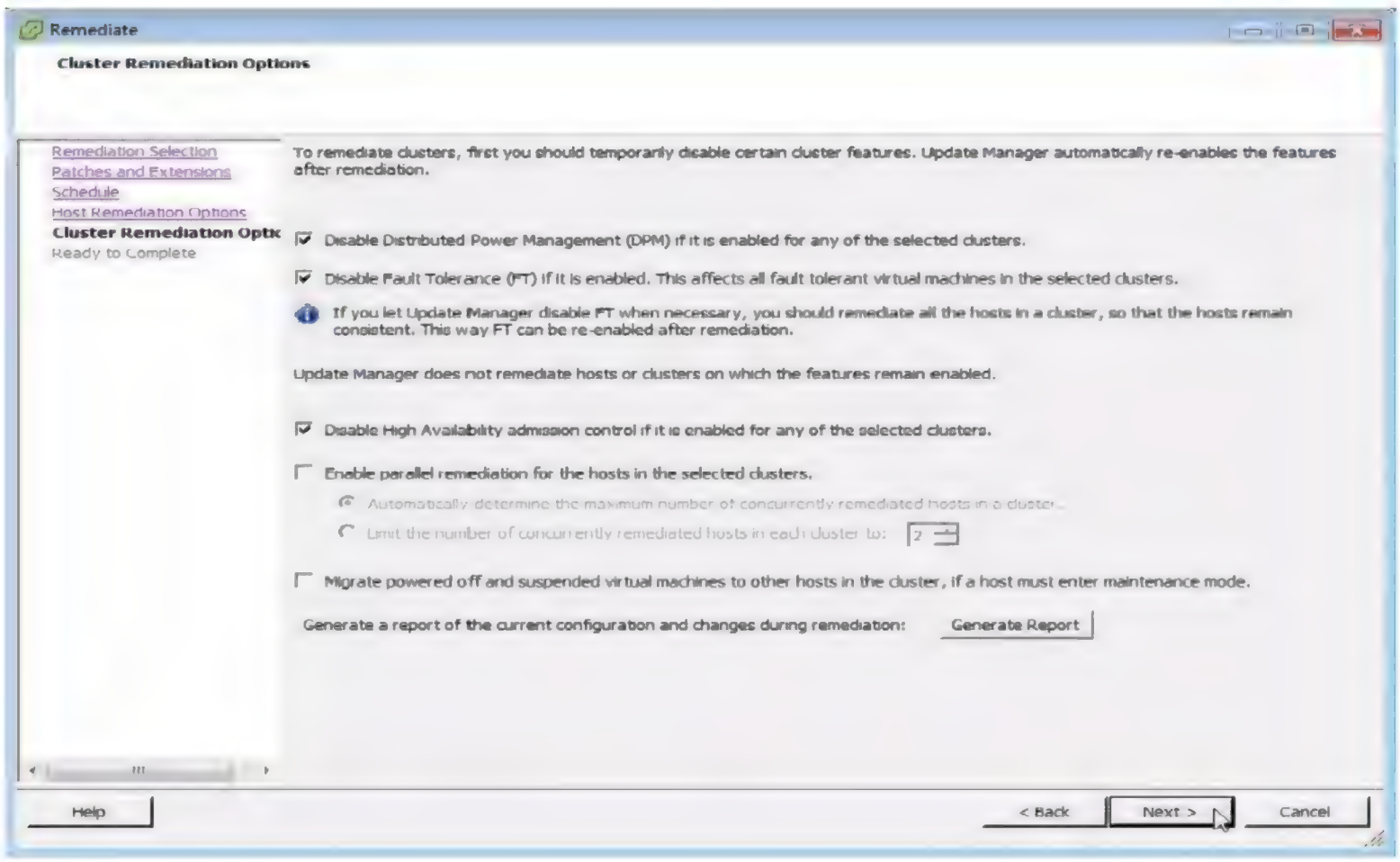
14. Select the Host to Remediate, Next to continue



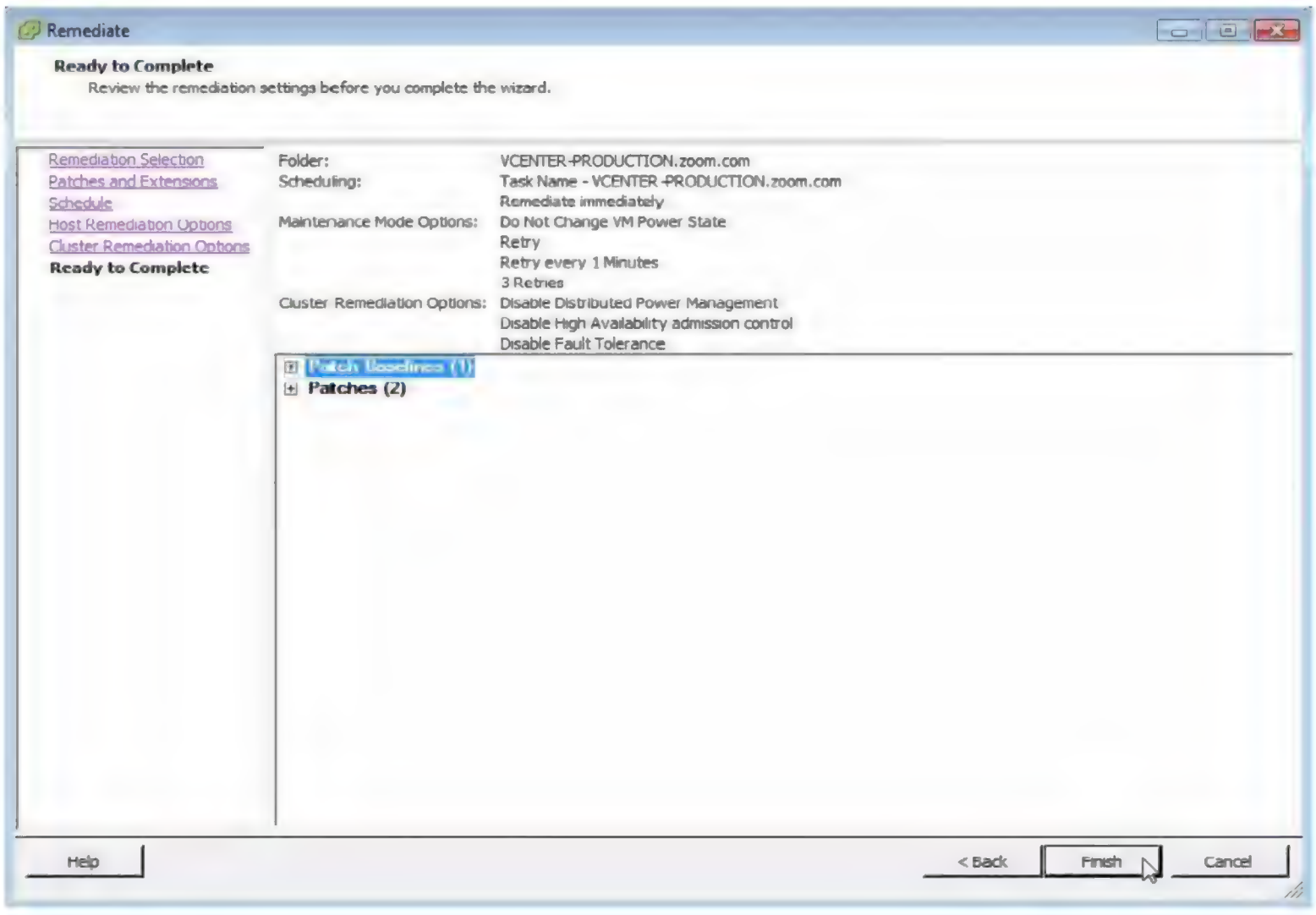
15. Select patches you want to apply, Next to continue



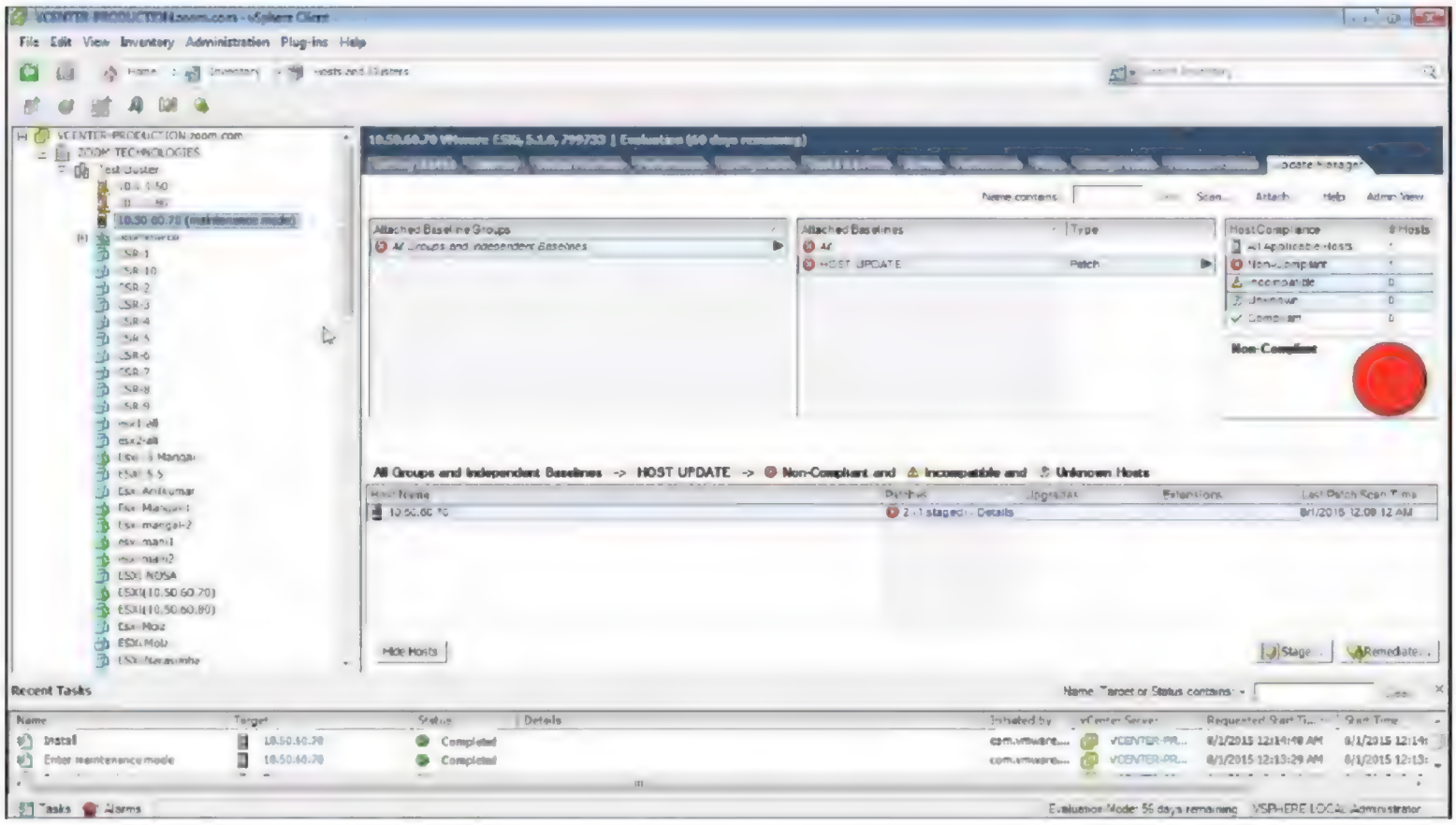
16. Select the default options, Next to continue



17. Disable any of the features of cluster if required - Next to continue

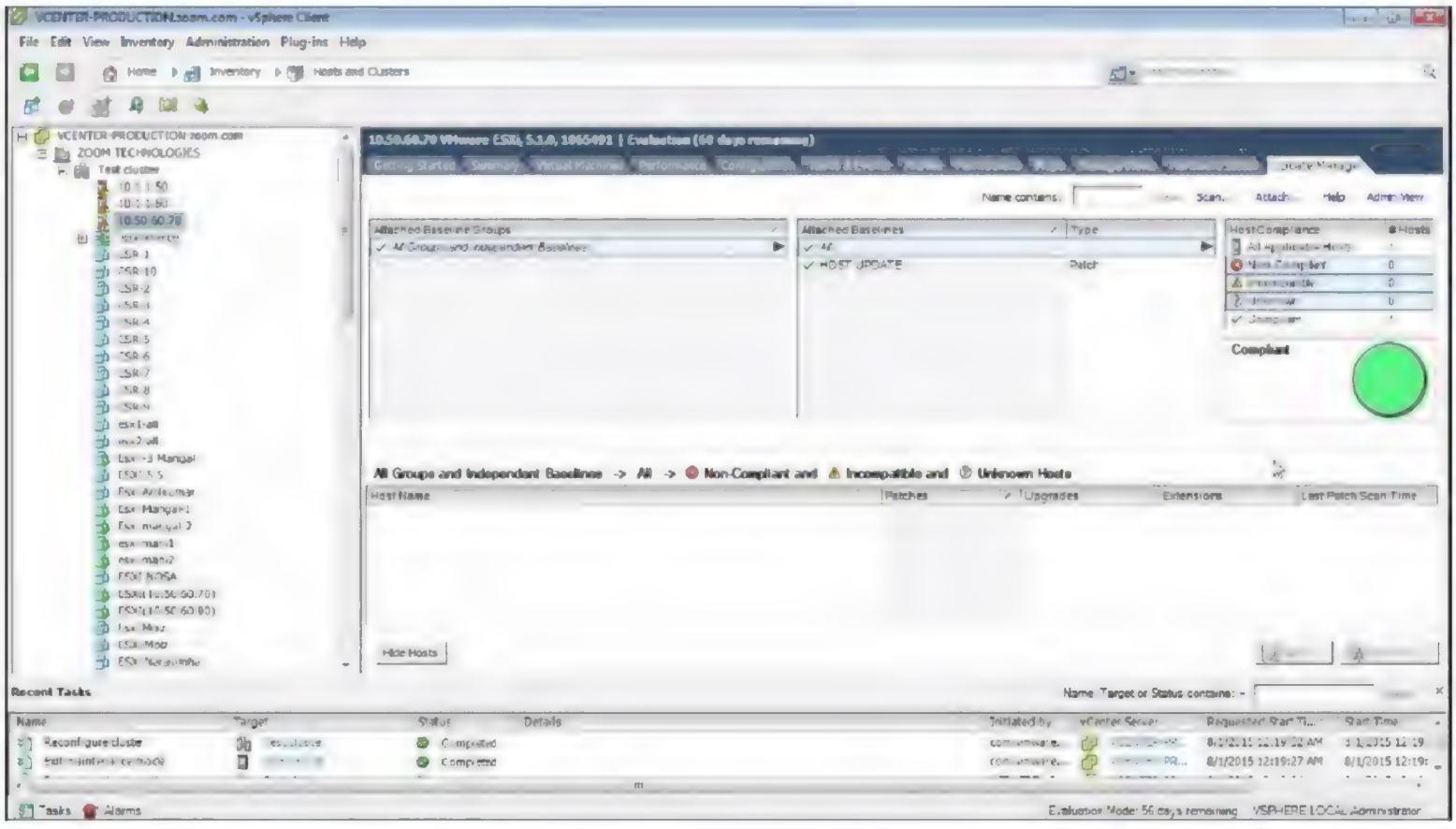


18. Finish to start the remediation



Update Manager enters the host in maintenance mode if required, installs the patch and initiates reboot and exit the host from maintenance mode

Verification:



Now you can observe that the host is a compliant host, patch got installed successfully.

LAB-22: ACCESS CONTROL

Objective:

To provide security to Host and vCenter Server

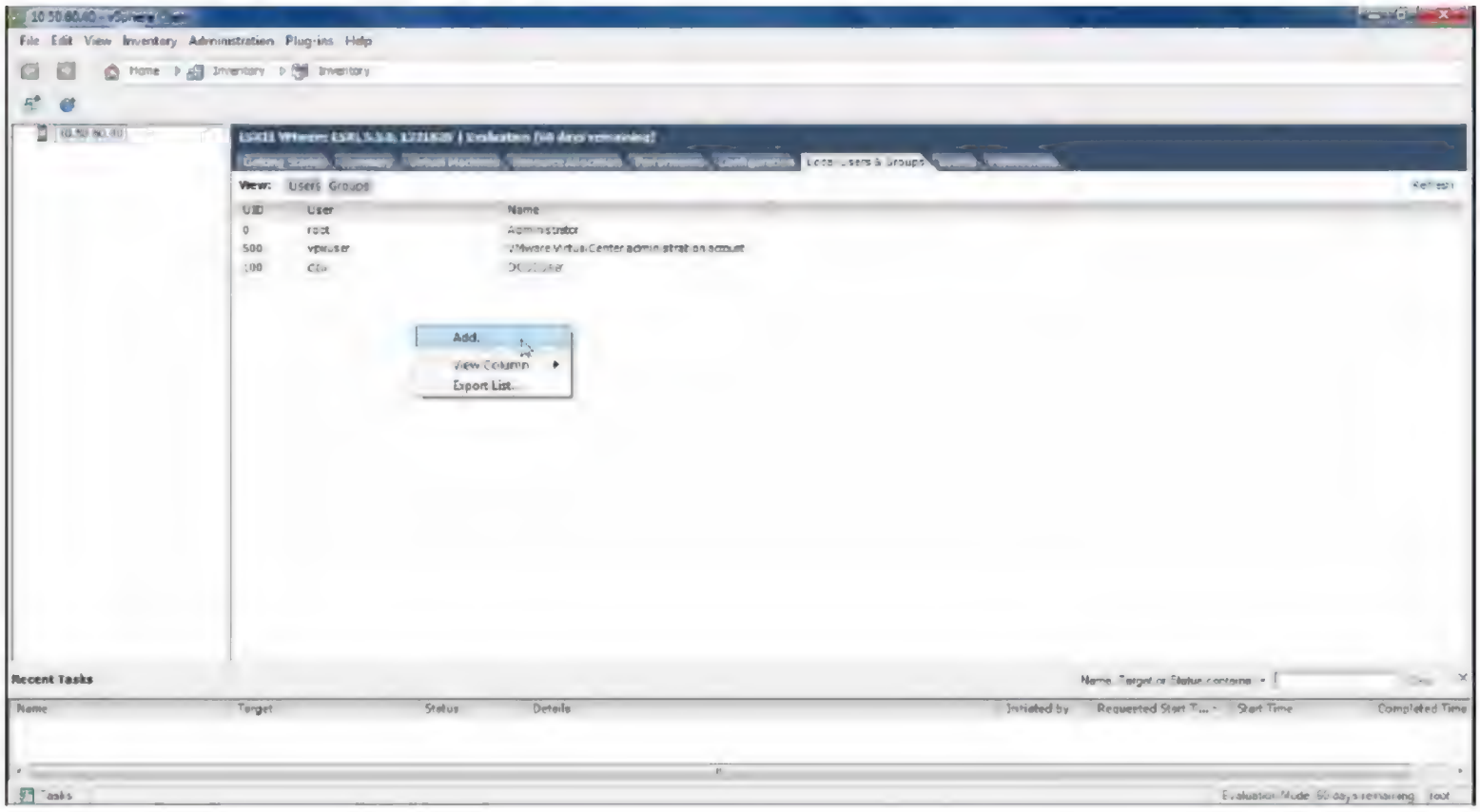
Tasks:

- Create a user on an ESXi Host
- Integrate ESXi Host with AD
- Assign users permission to access vCenter server

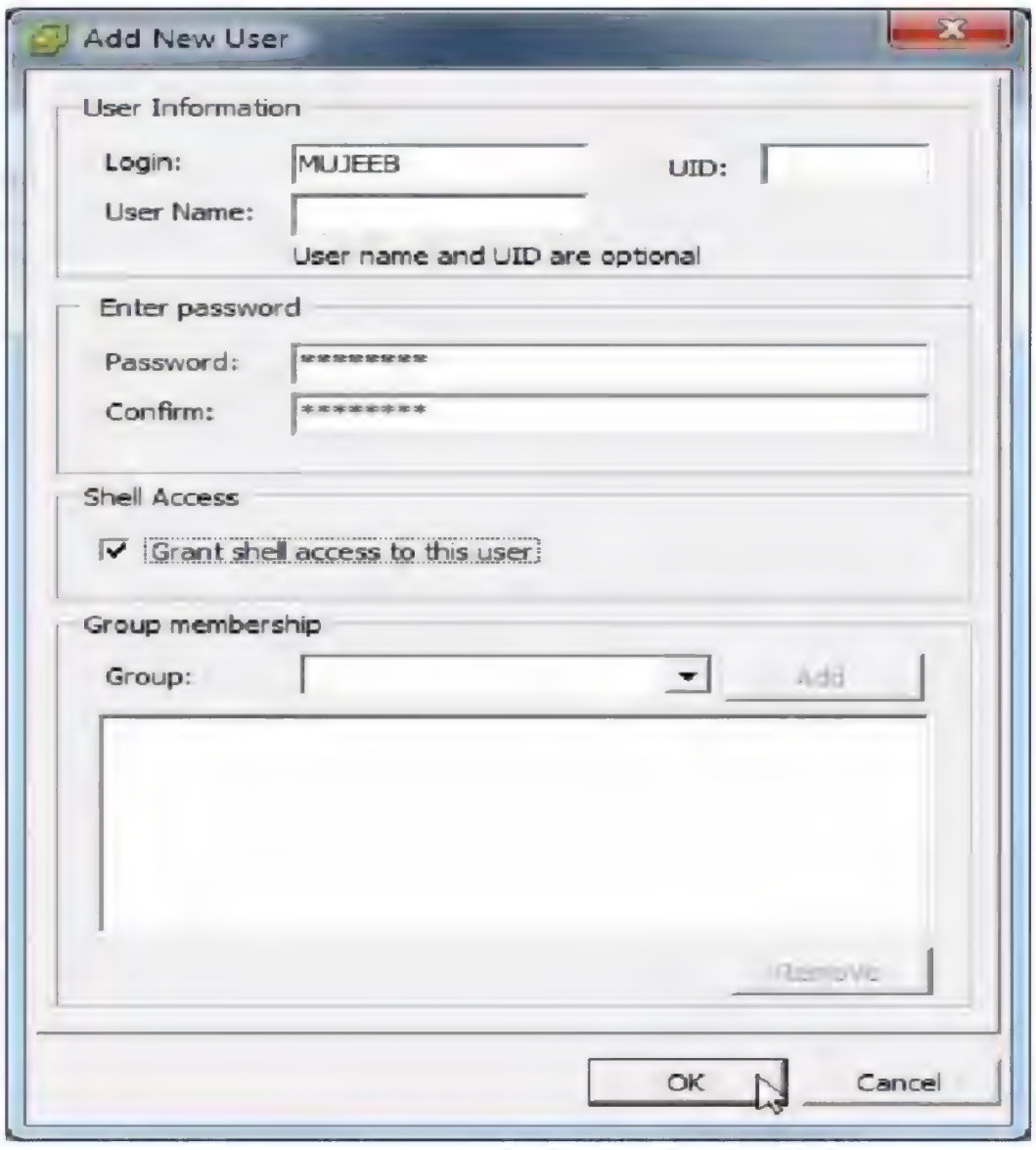
Creating a Local User Account on ESXi

Steps:

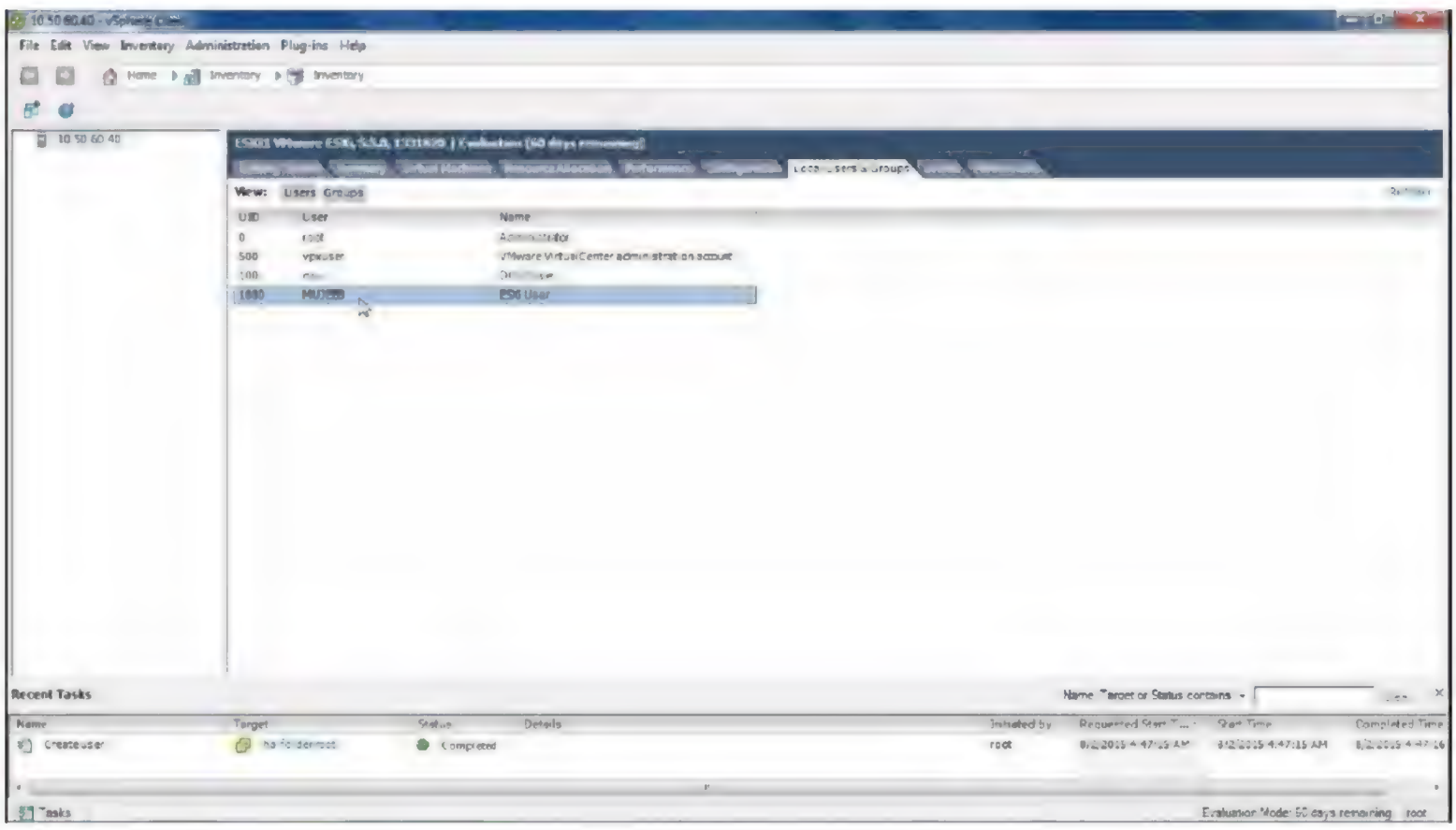
1. Login to ESXi Host Using vSphere Client



2. Go to Local Users & Groups Tab - Right Click - Add

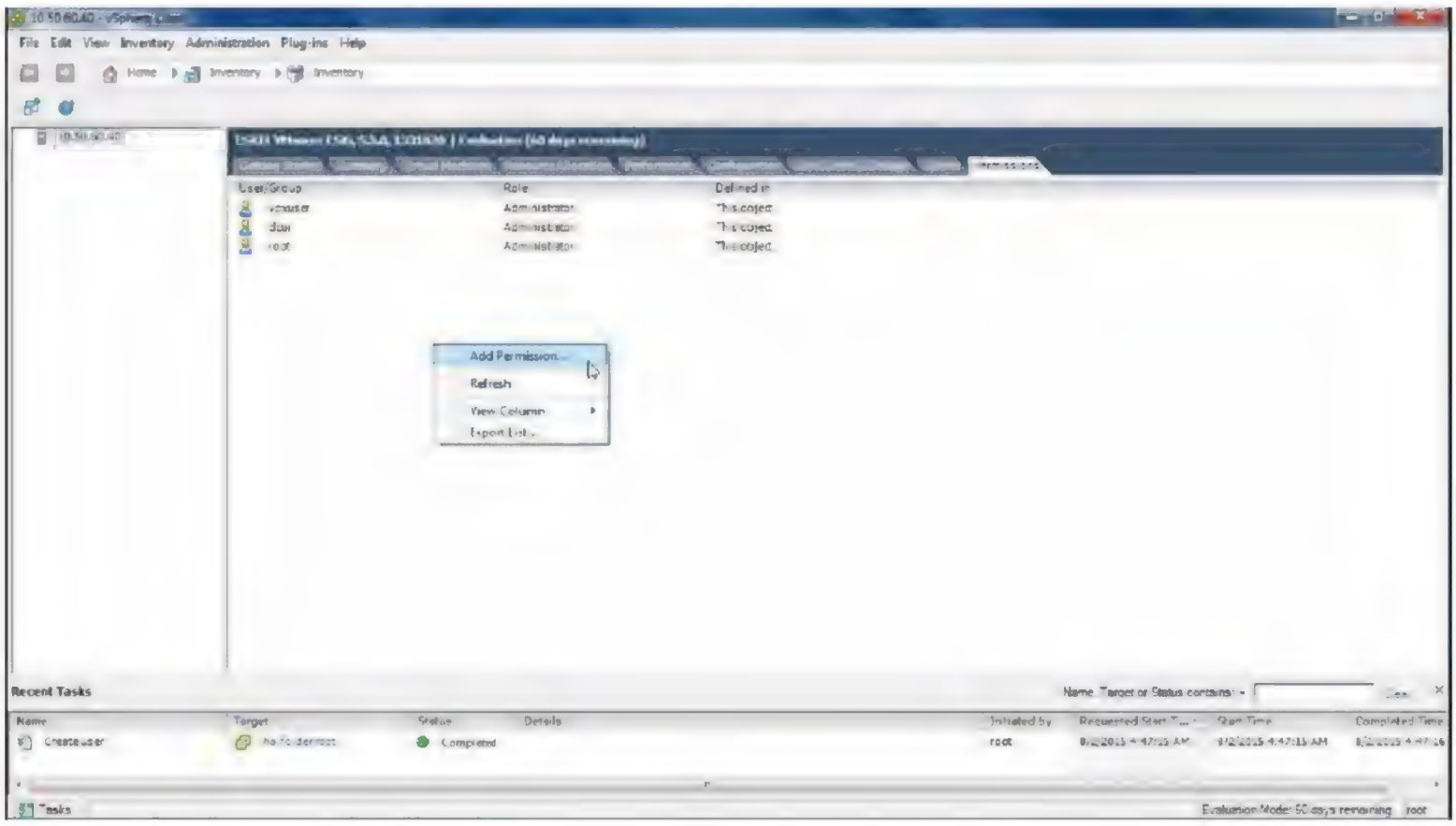


3. Give Login Name, Password, and Grant shell access if required by the user–OK to continue

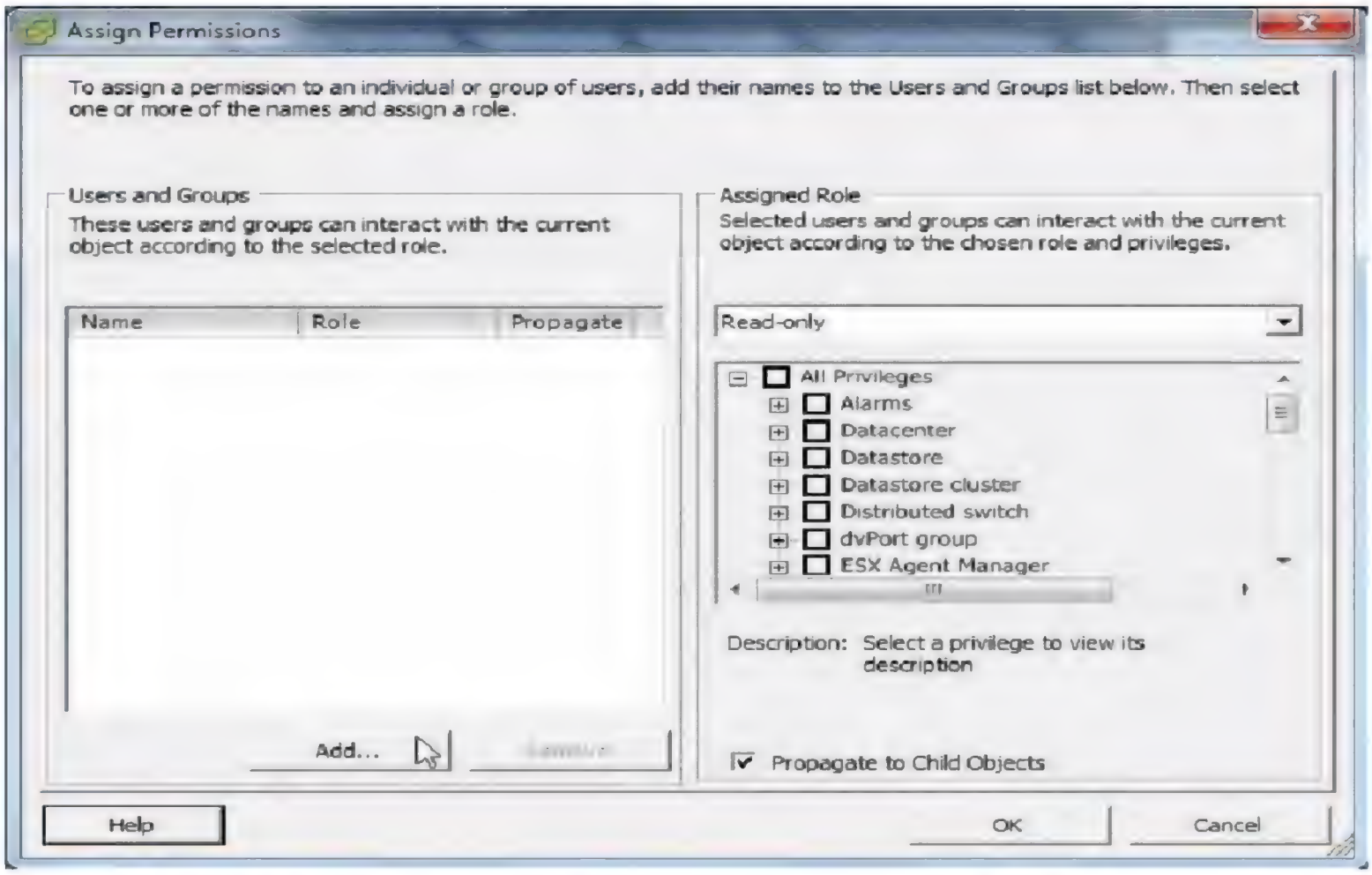


Observe user is created

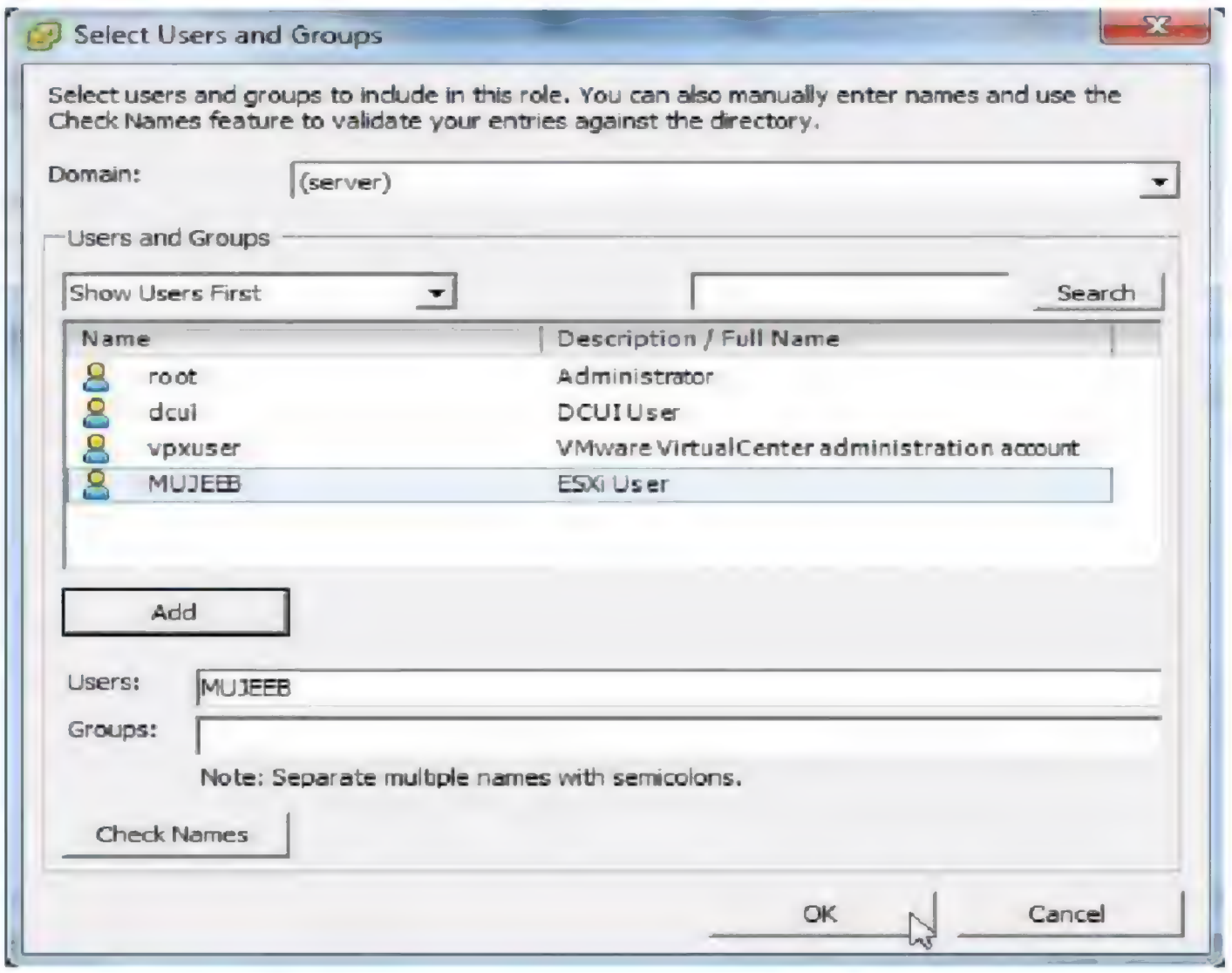
Assigning permissions to user



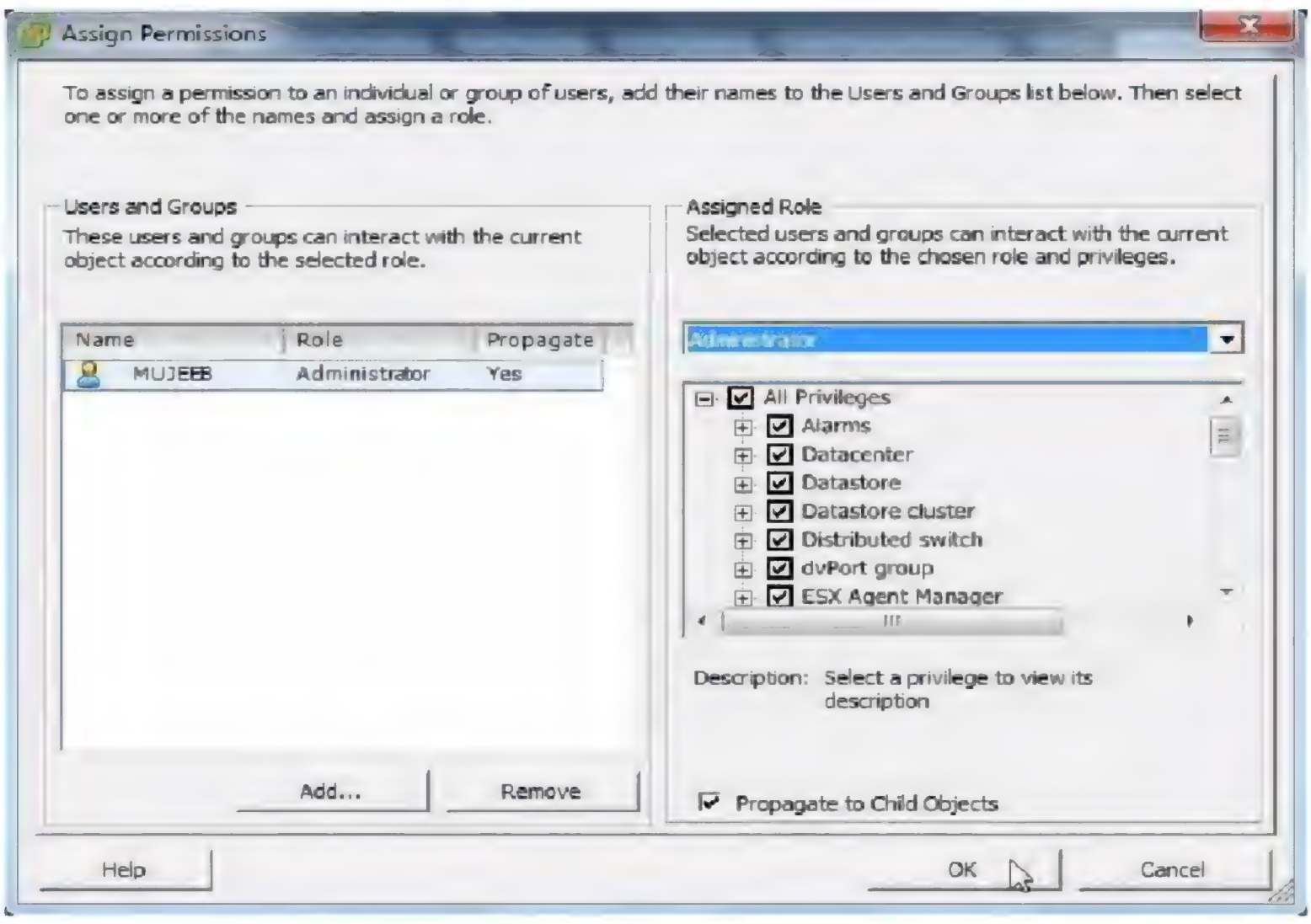
4. Go to Permissions tab, Right Click - Add Permission



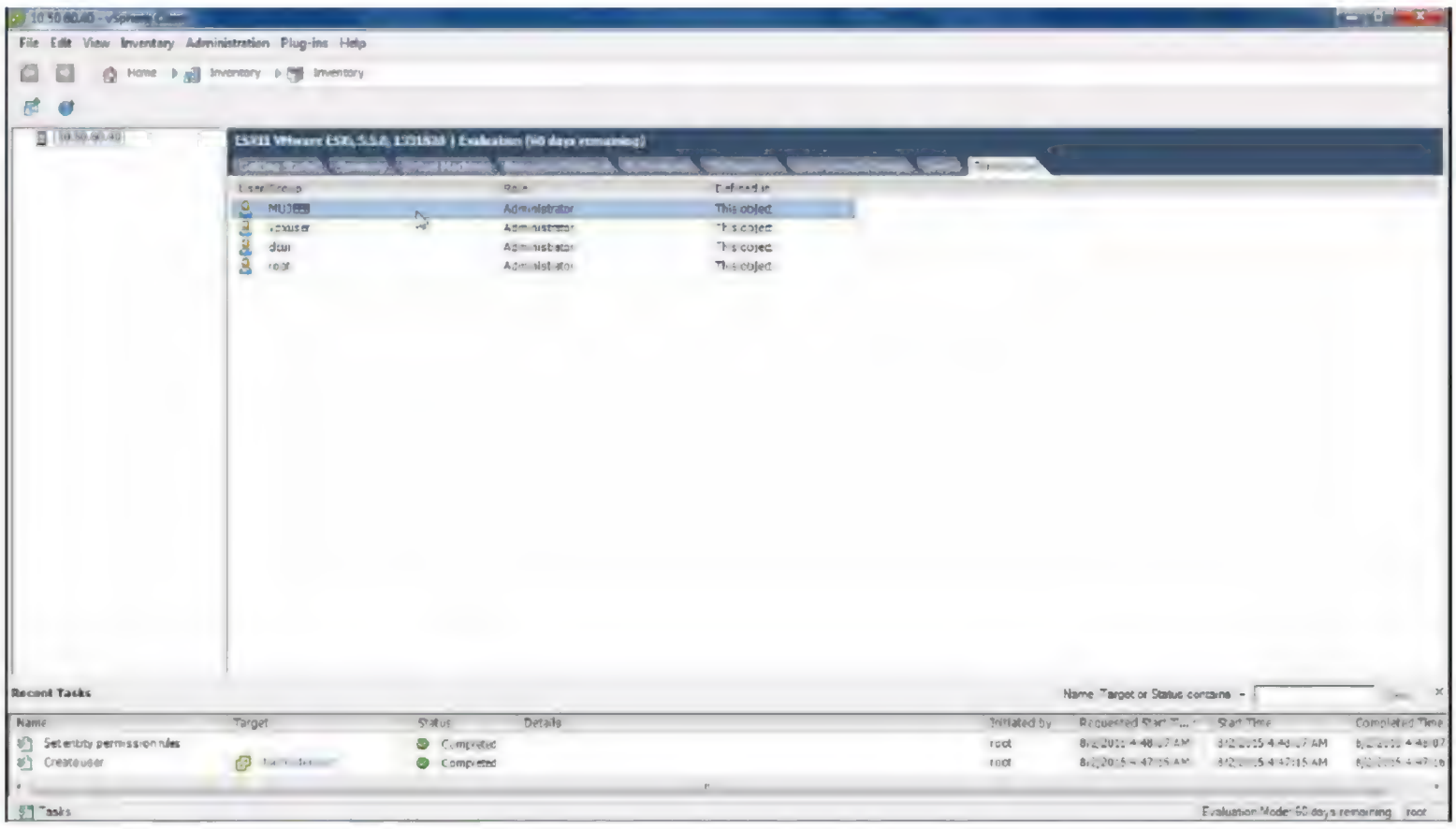
5. Add Users or Group



6. Select a user - Add -OK



7. Assign Administrator Role – OK



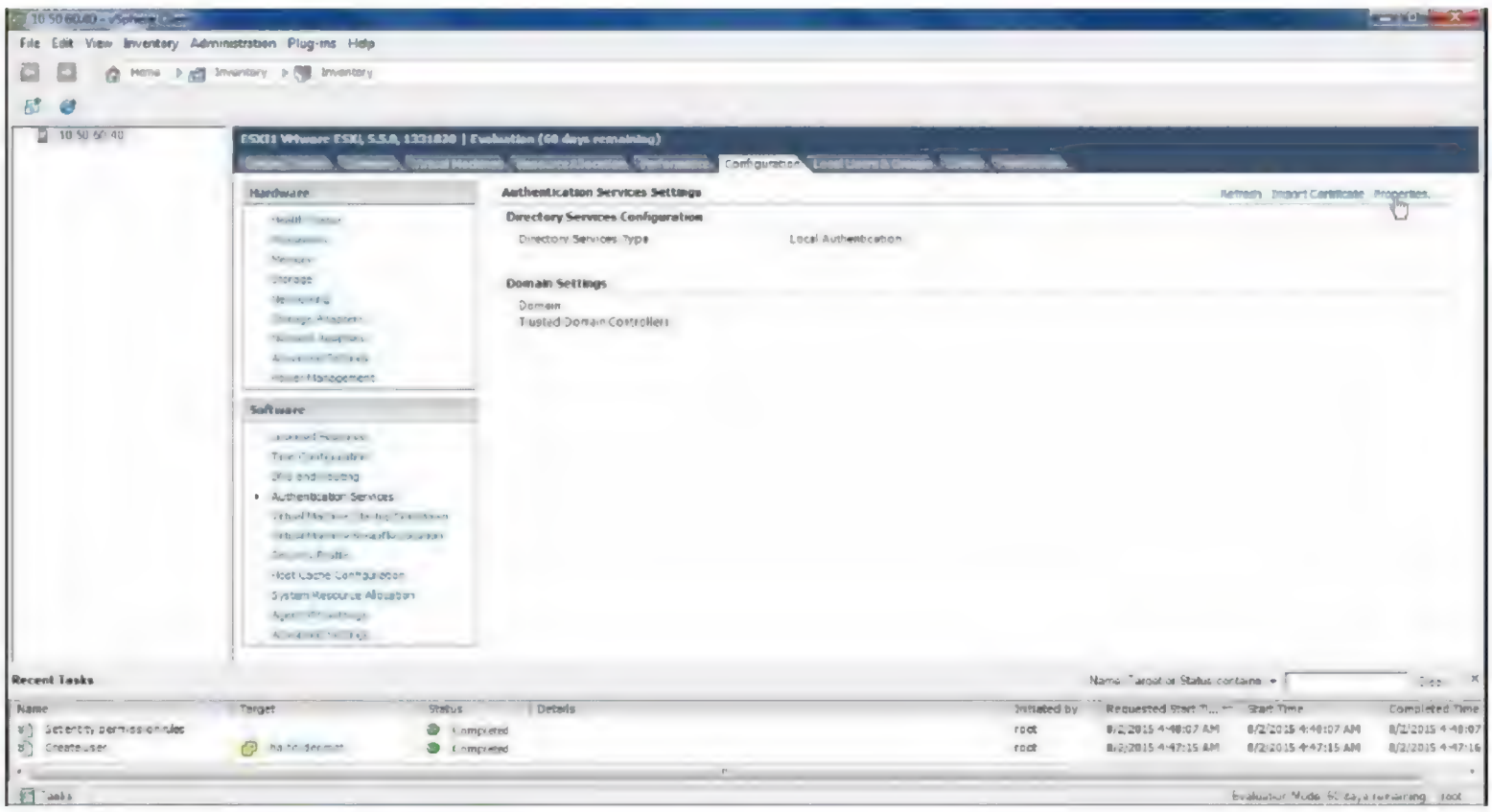
Observe user has been assigned Administrator Role

Now user can login to the host using his own account

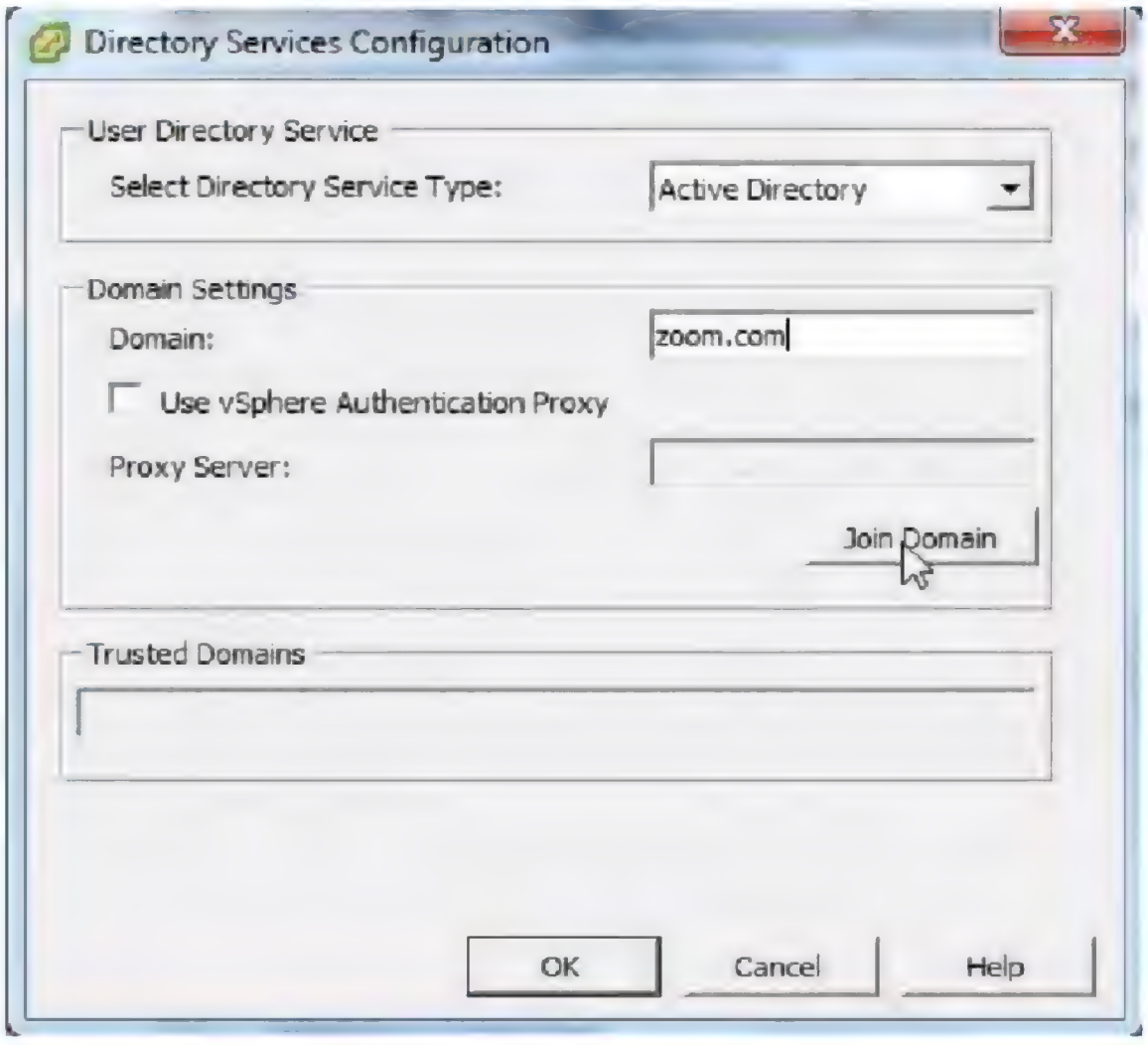
Integrating ESXi Host with AD

Steps:

1. Login to ESXi Host



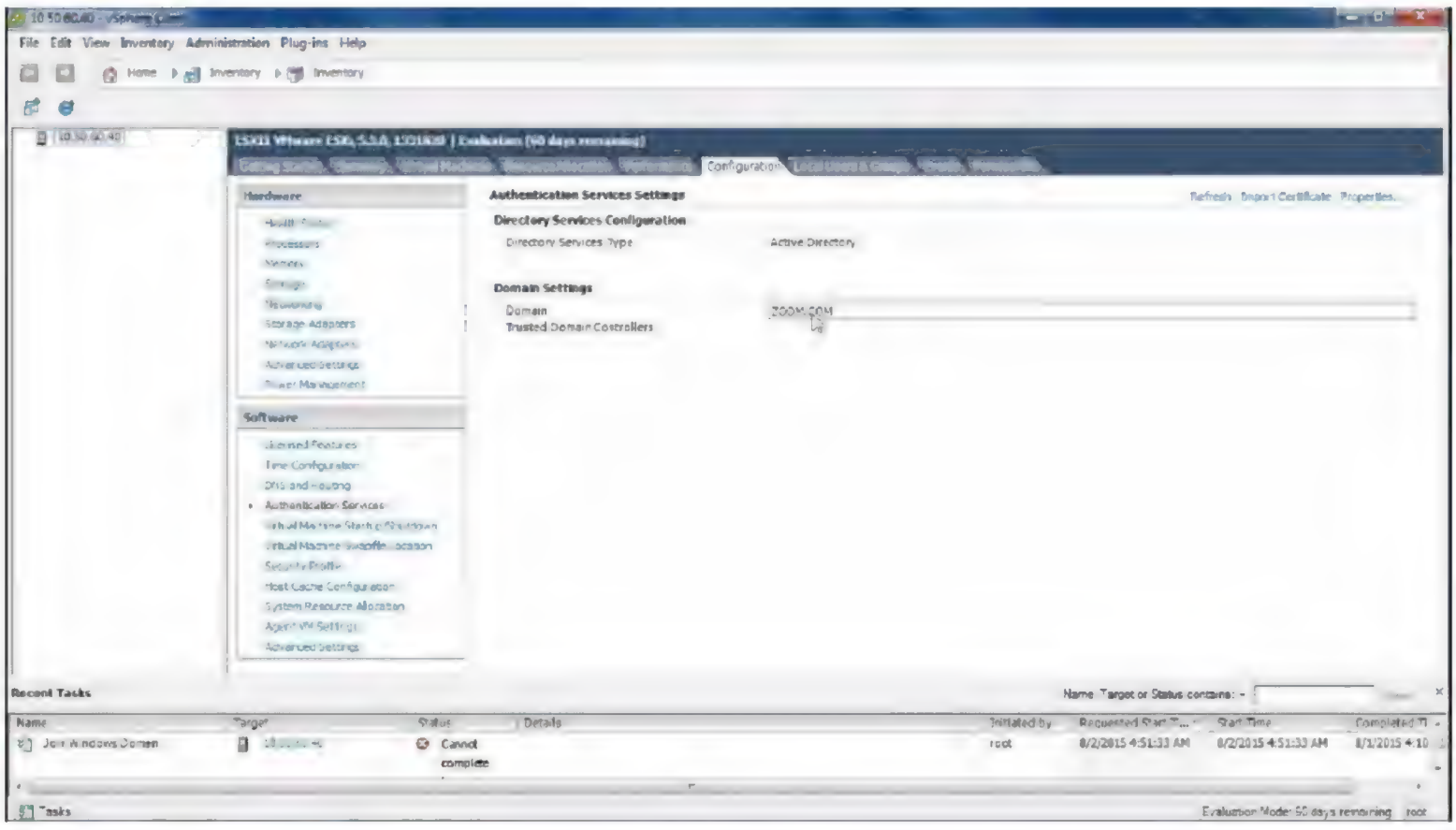
2. Go to Configuration Tab - Select Authentication Services - Click on Properties



3. Select Active Directory from drop down - enter Domain - Click Join Domain

   OK

4. Enter domain credentials - Click on Join Domain

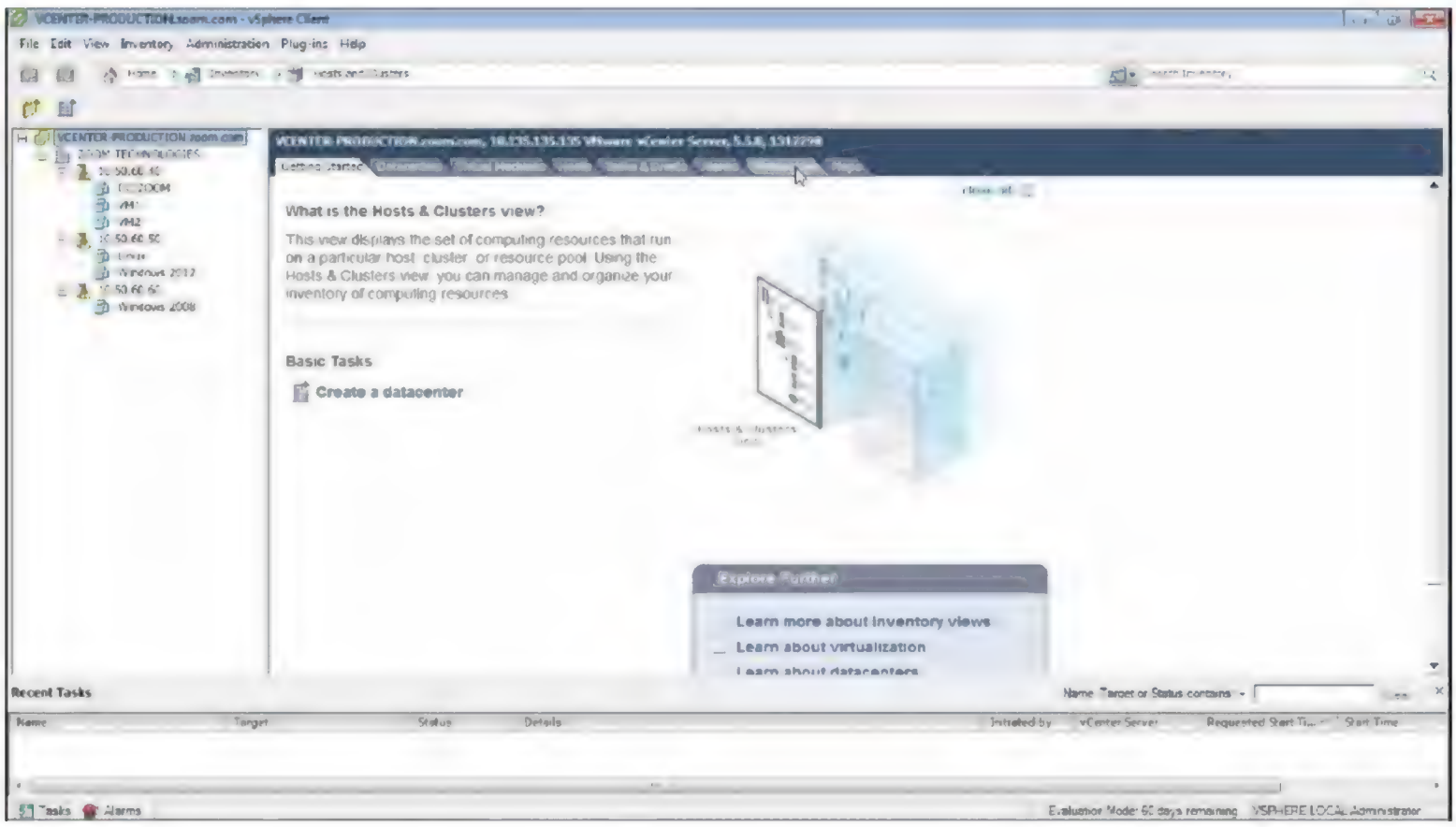


5. Observe ESXi Host is now integrated with AD

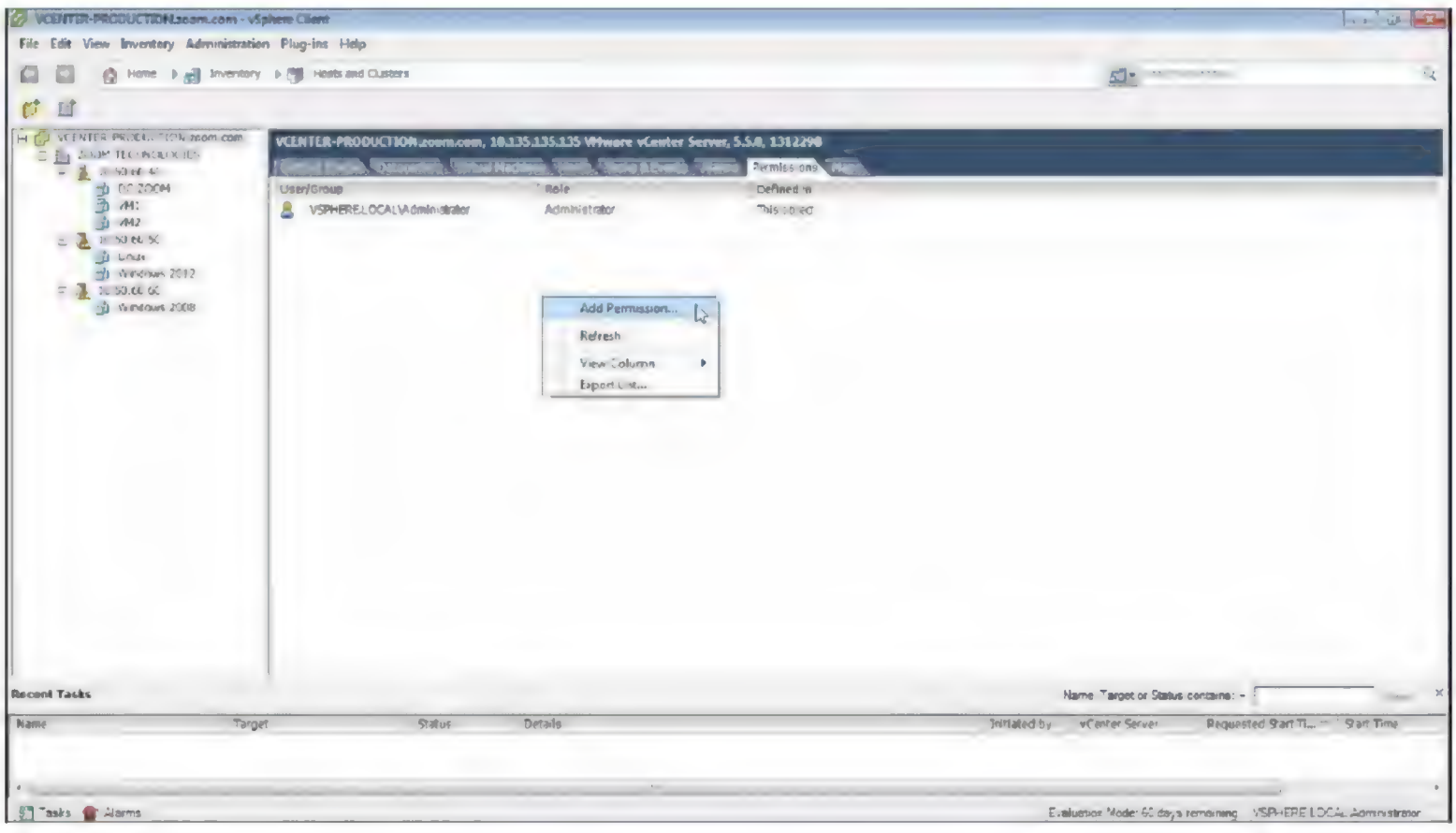
Assigning Permissions to access vCenter Server

Steps:

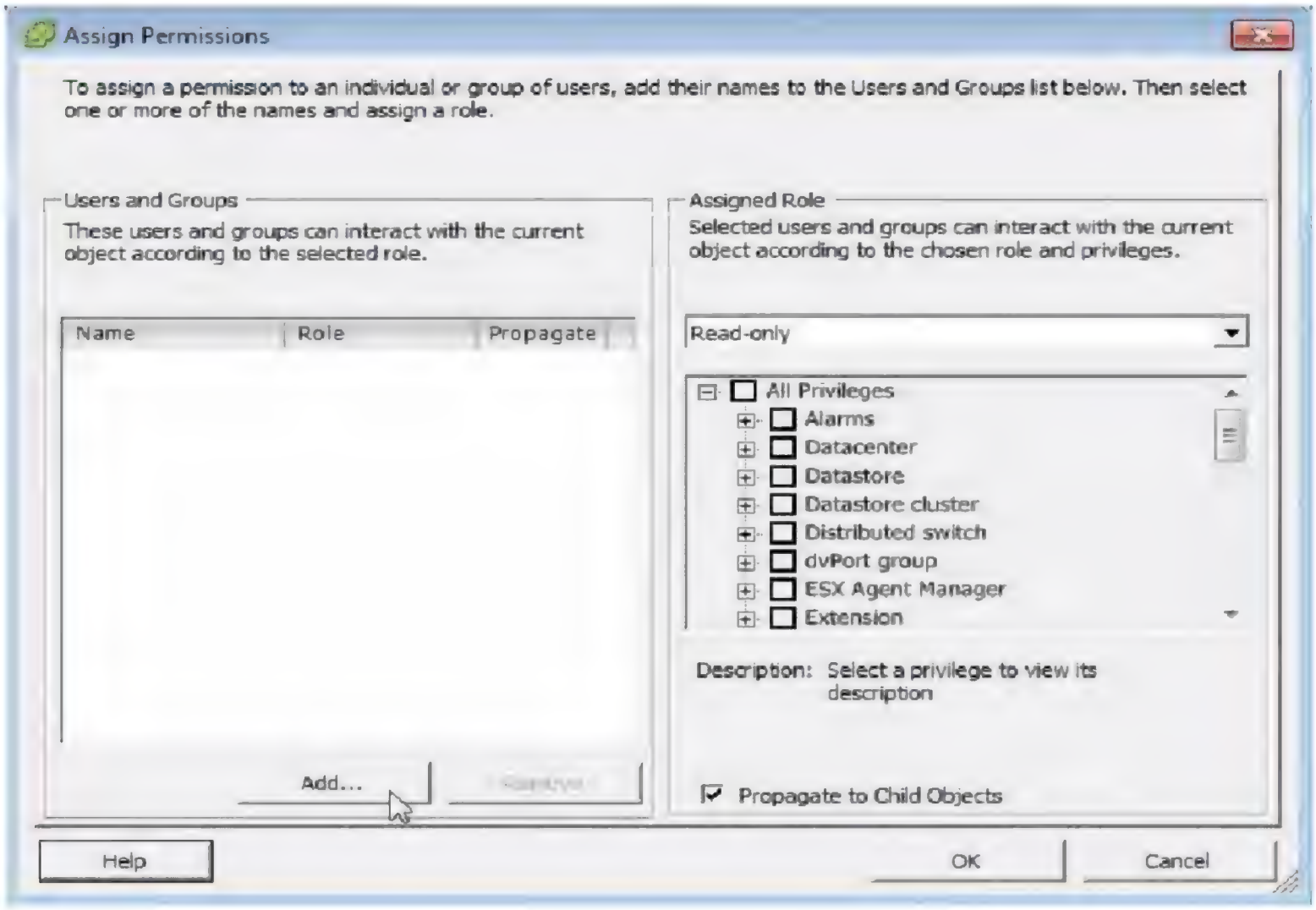
1. Login to vCenter Server



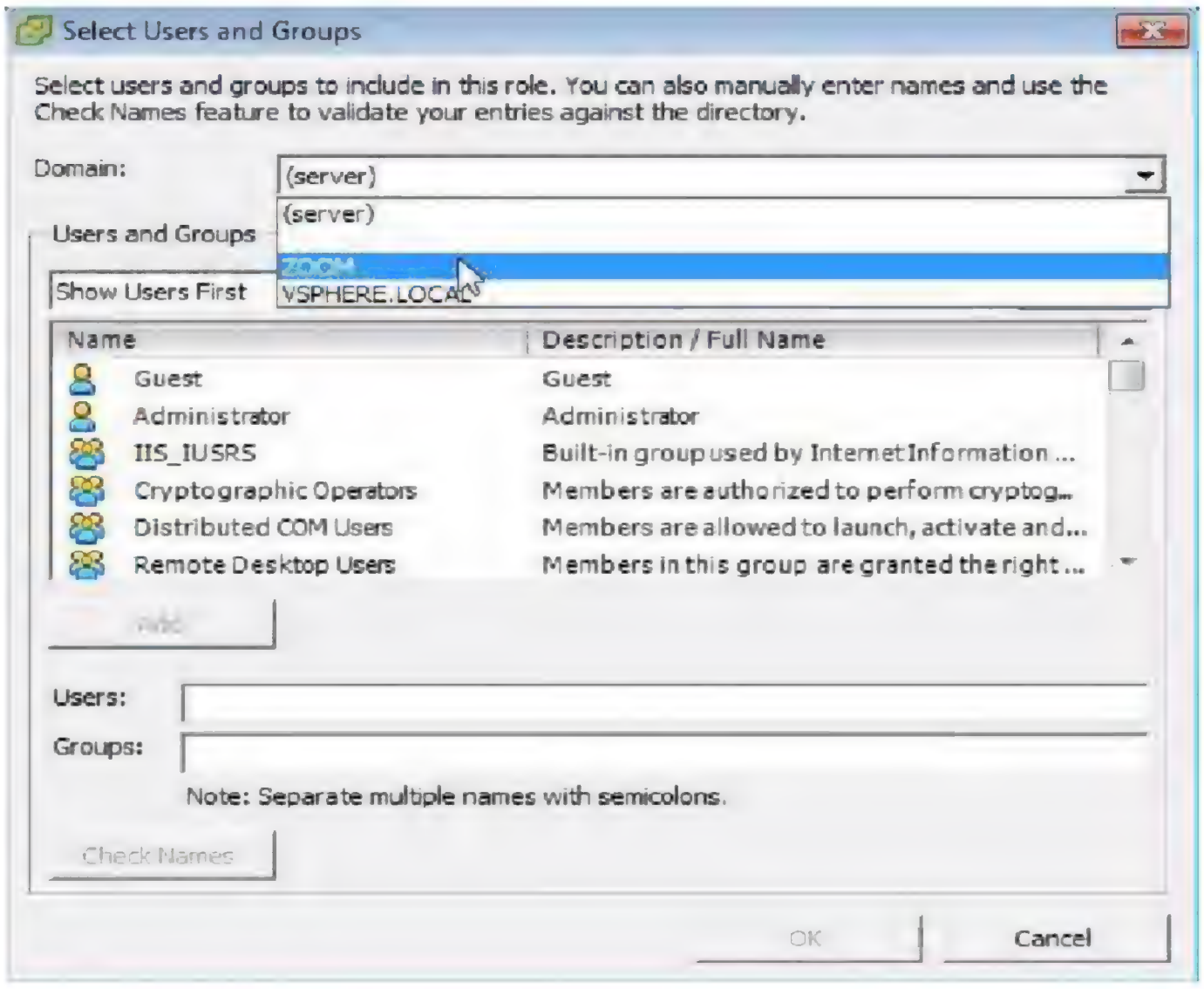
2. Click on Permissions Tab



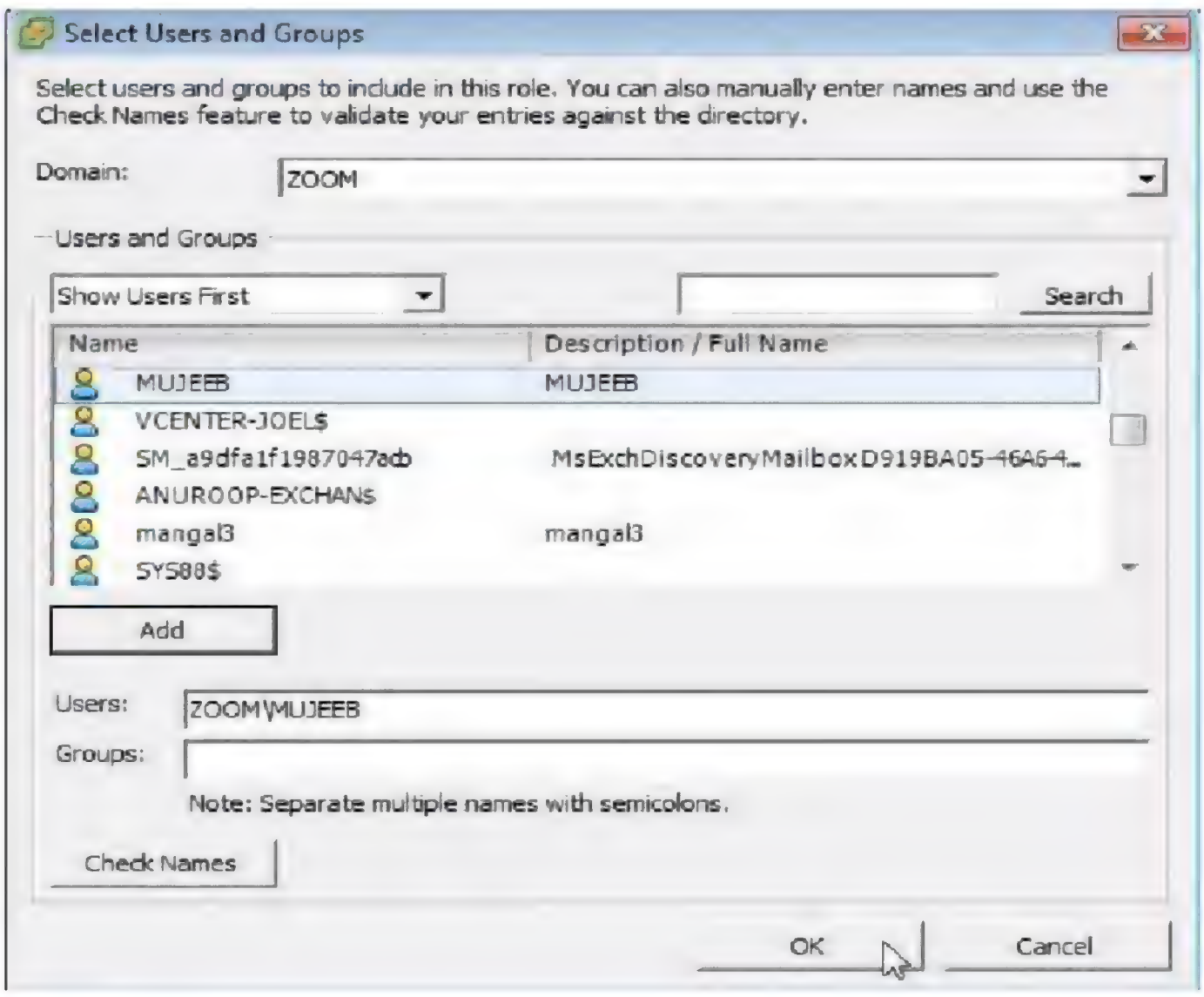
3. Right Click - Add Permissions



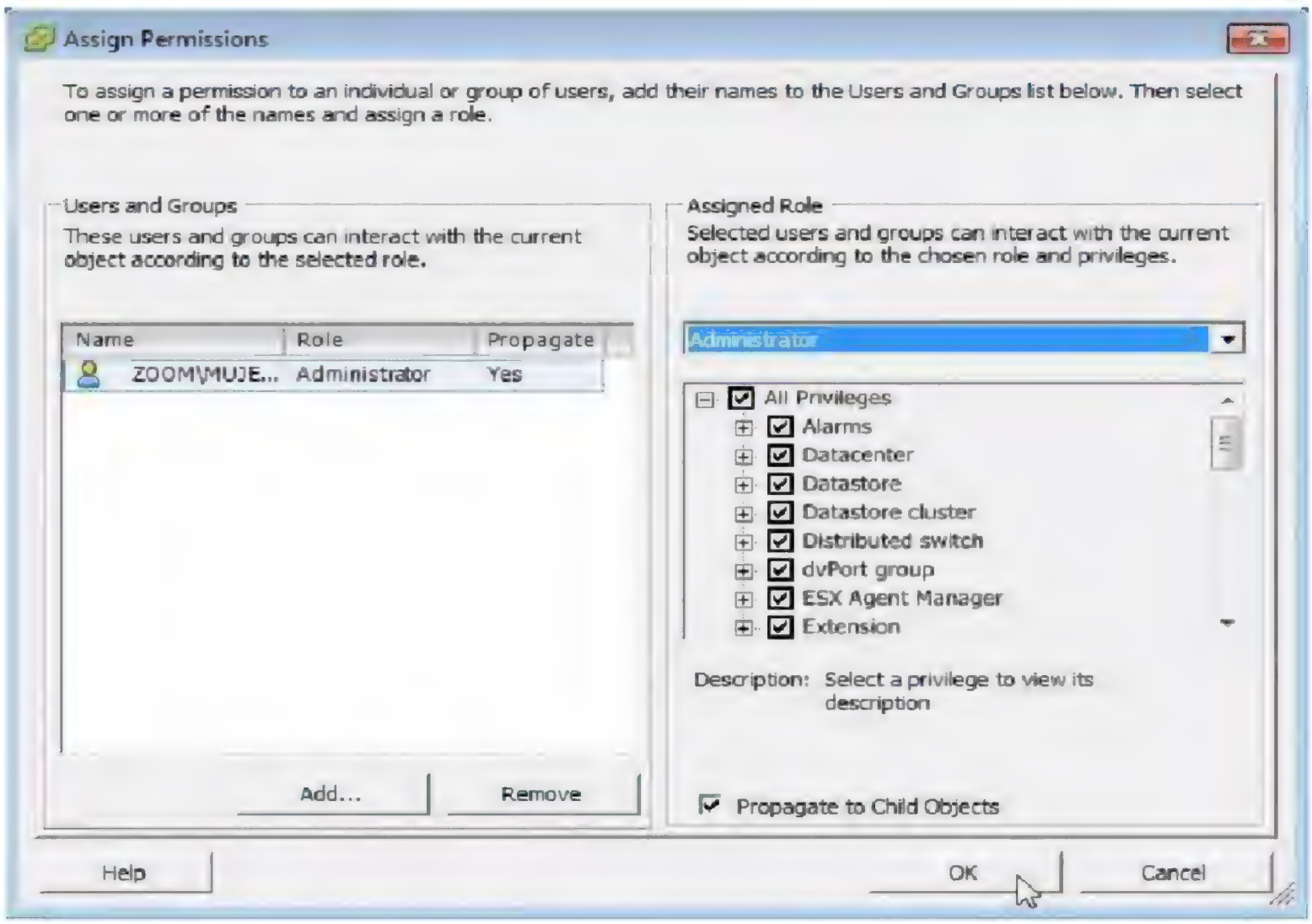
4. AddUser or Group



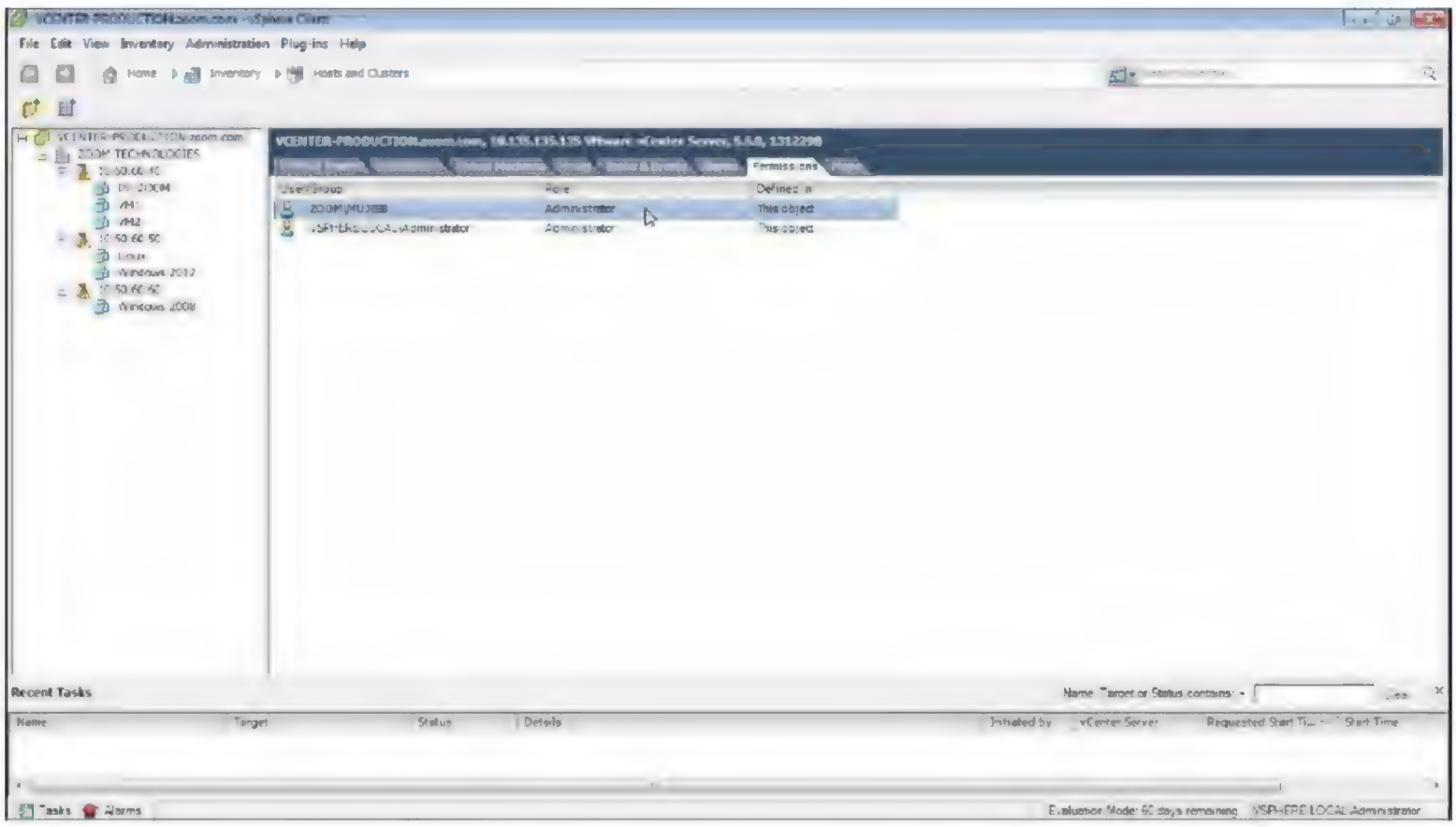
5. Select Domain to add Users or Groups from



6. Select User, Add - OK



7. Assign a Role from the drop down – OK



Observe the user has been granted Administrator Role

User can now login to vCenter Server using his own account

LAB-23: RESOURCE POOLS FOR VMs

Objective:

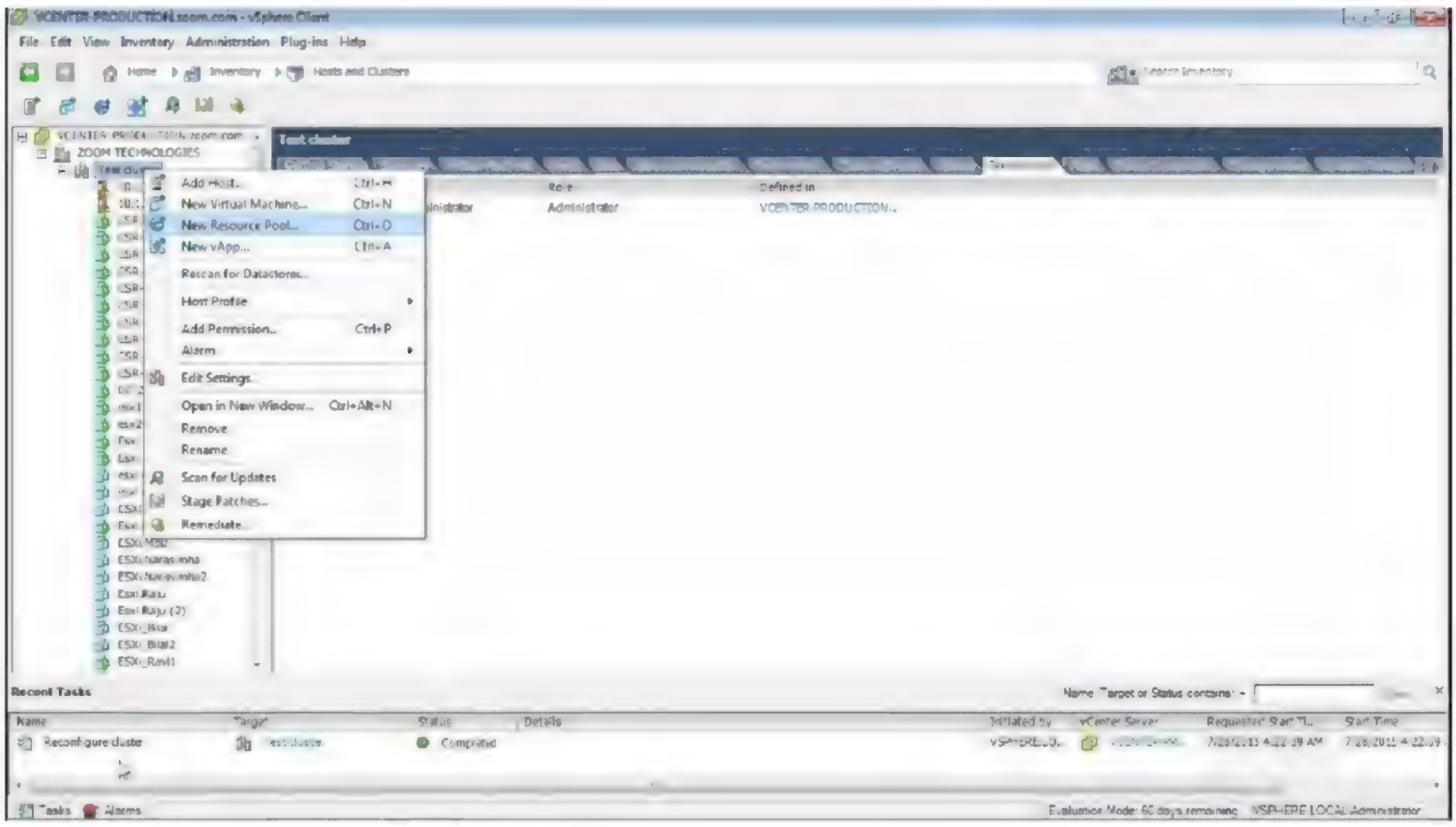
To allocate computing resources to a group of VMs

Prerequisites:

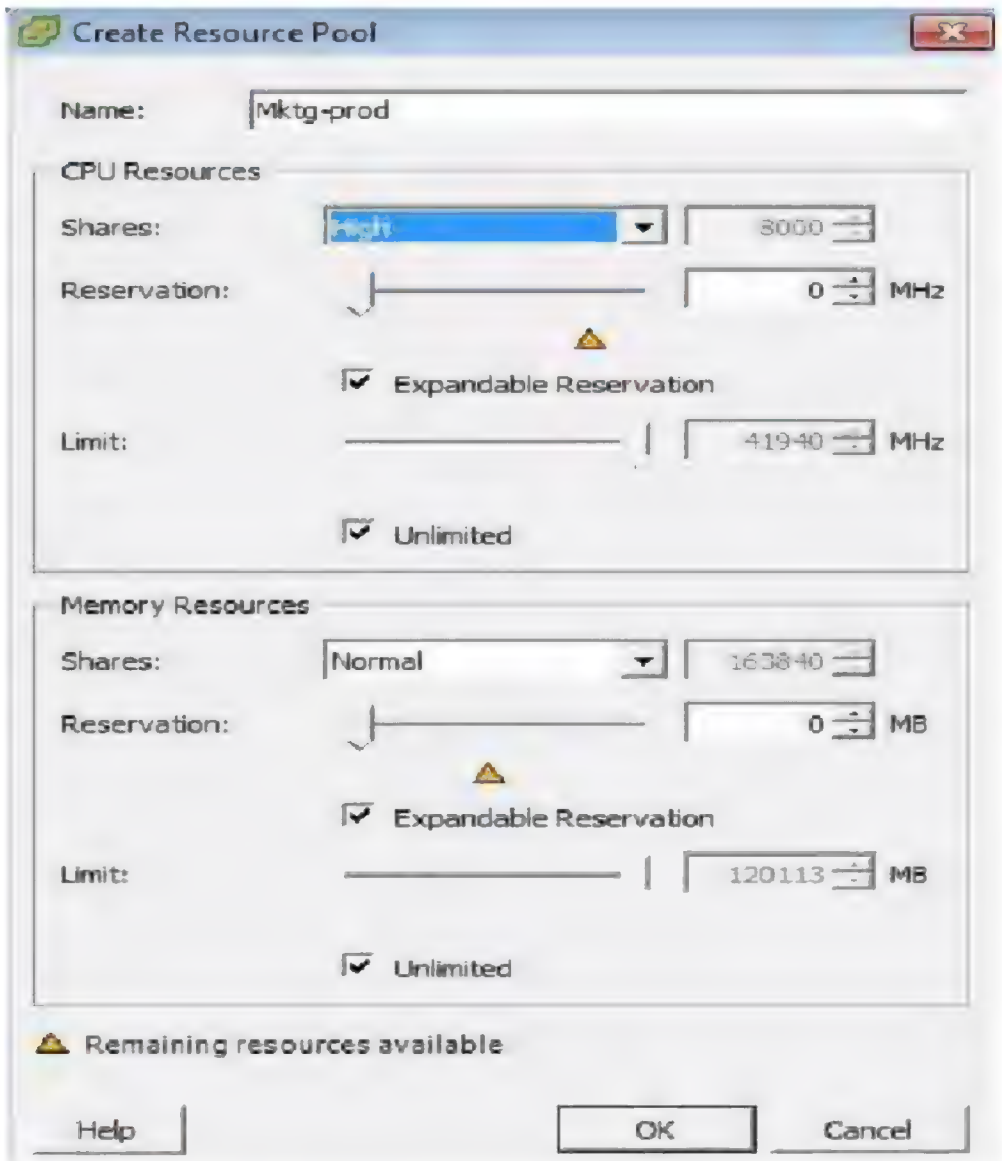
vCenter Server

Steps:

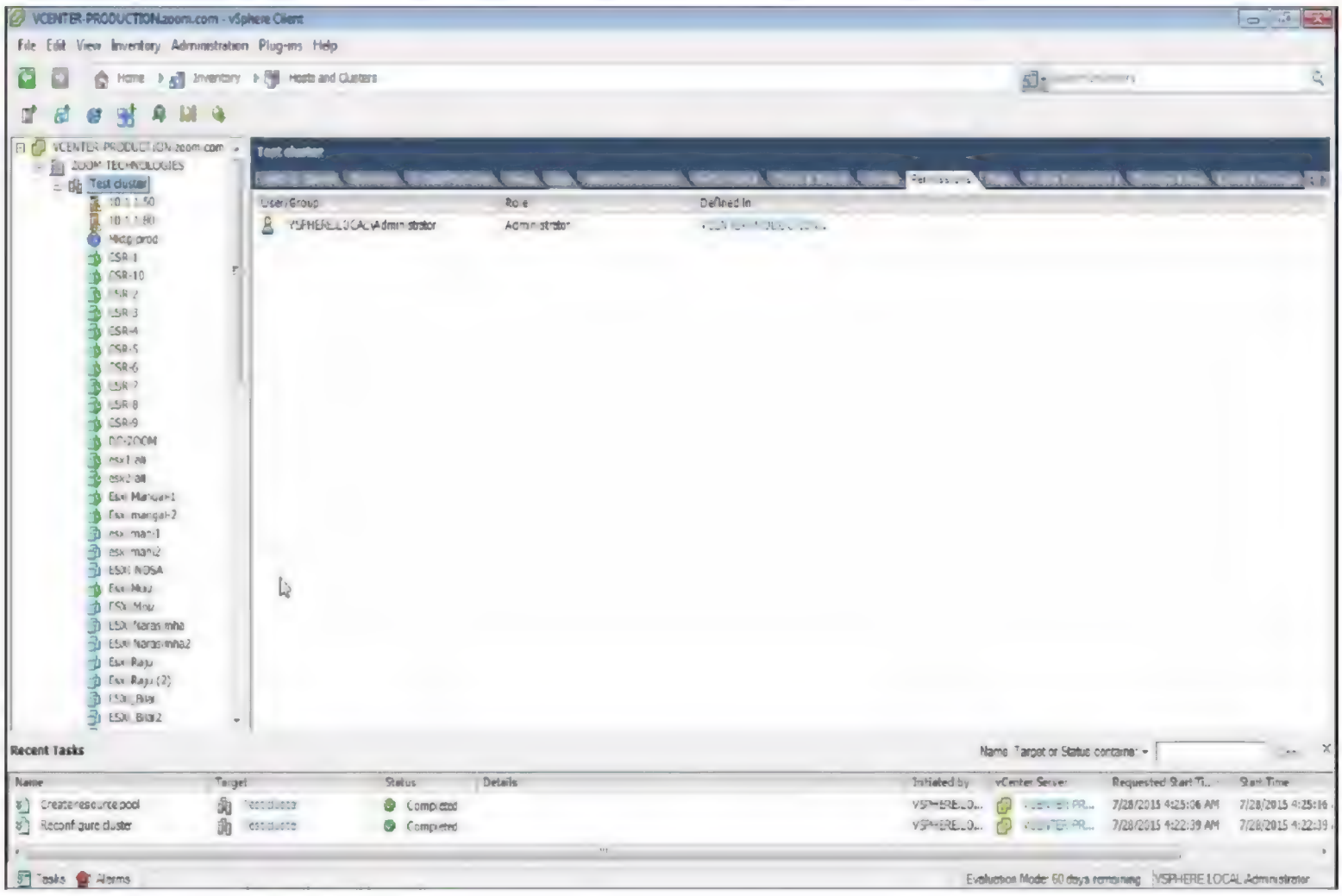
1. Login to vCenter Server



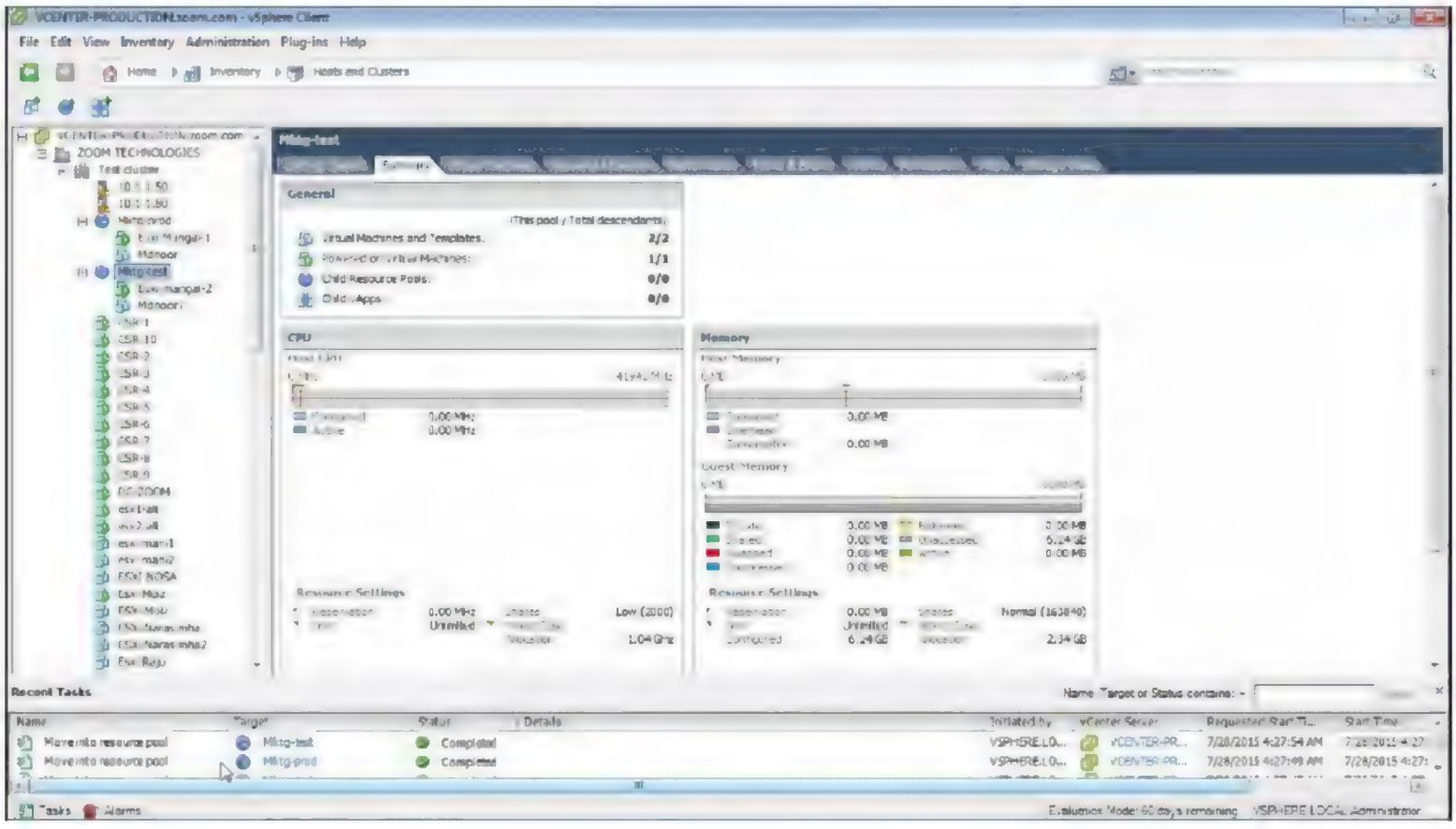
2. Right click on cluster - New Resource Pool



3. Give a name, Assign Shares for CPU & Memory – OK



4. Resource pool is created, drag and drop VMs to the resource pool



VMs are going to utilize resources from the resource pool

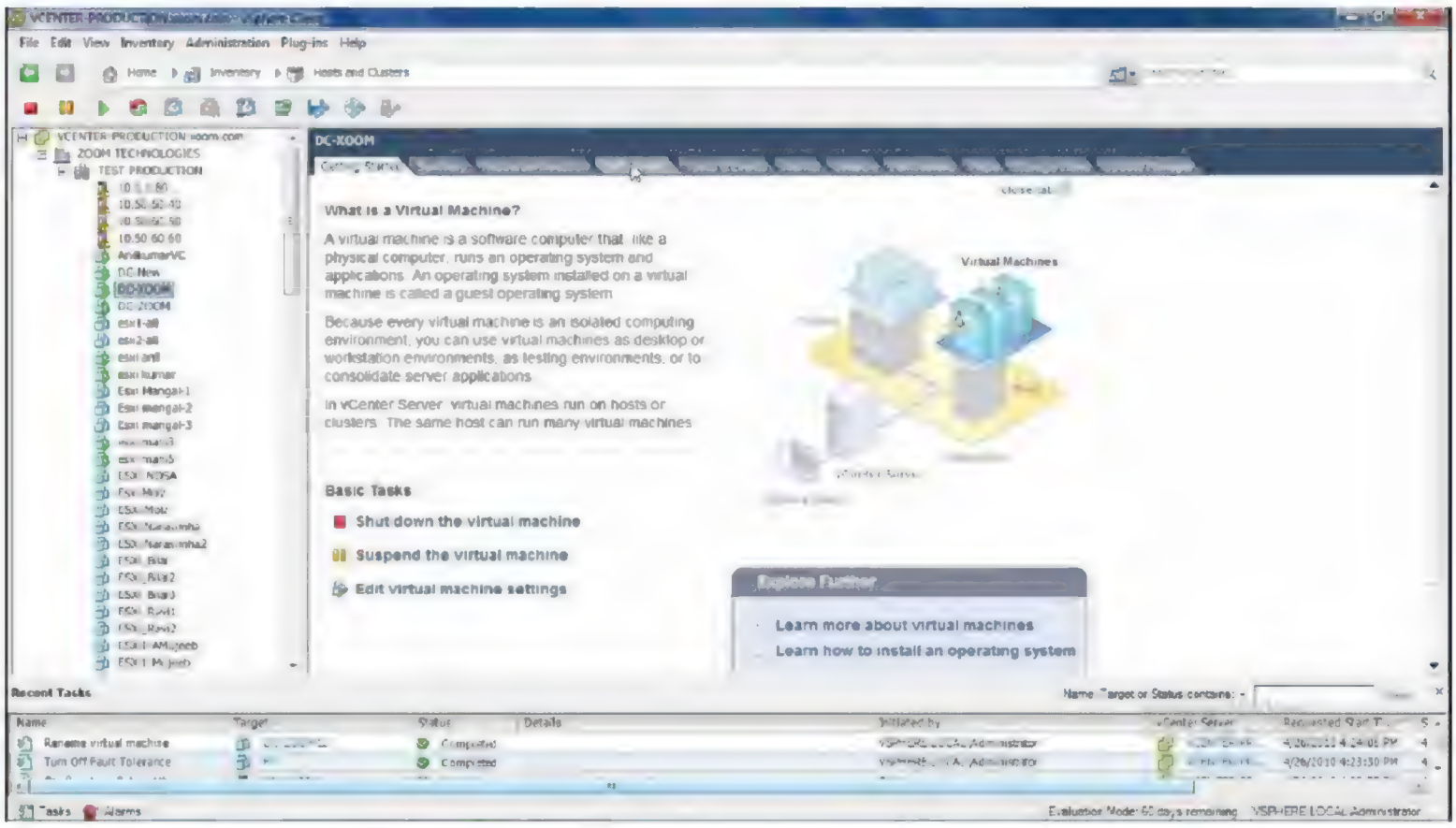
LAB-24: PERFORMANCE MONITORING

Objective:

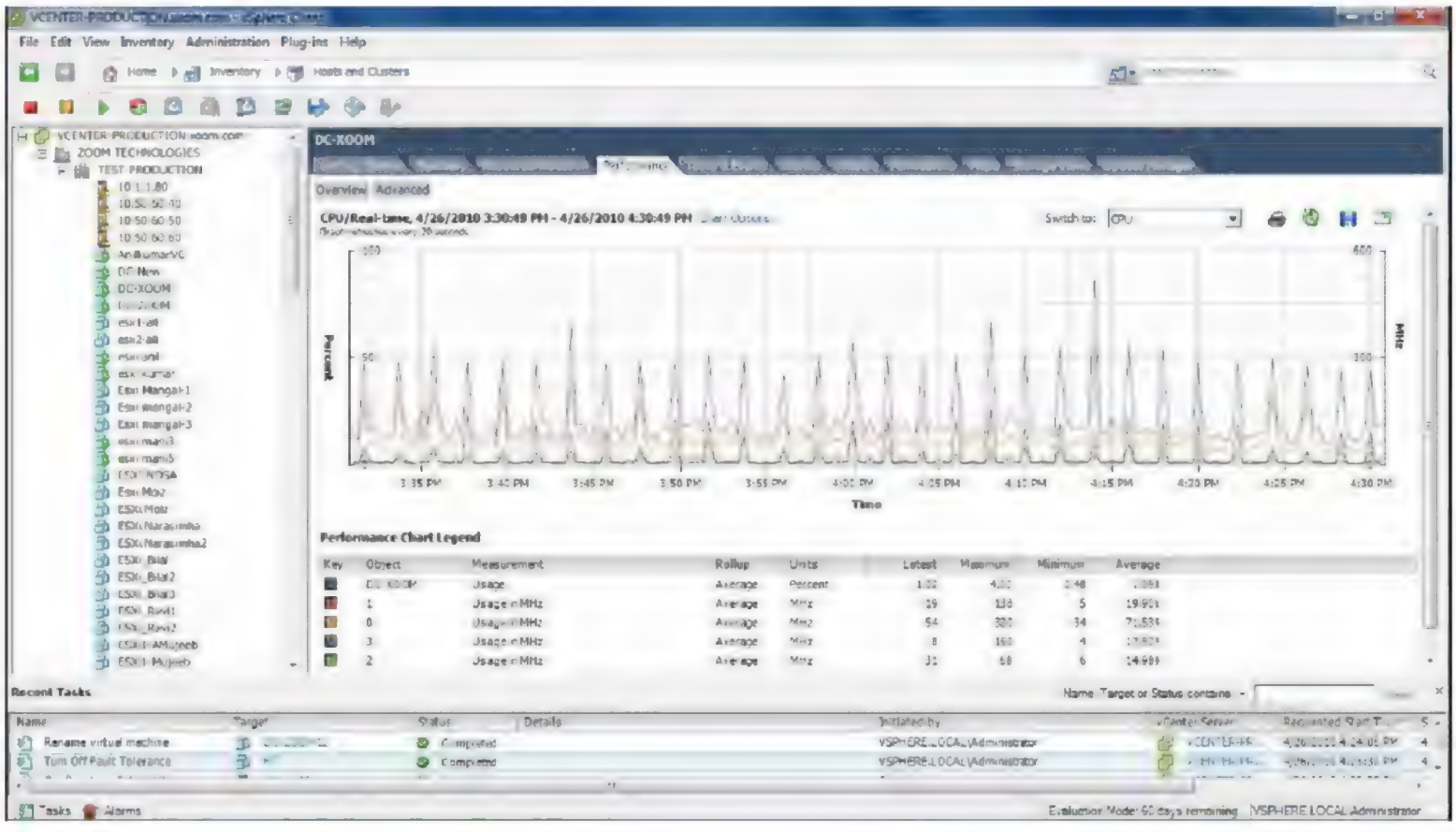
To monitor the resource utilization of Virtual Machines

Steps:

1. Login to vCenter Server

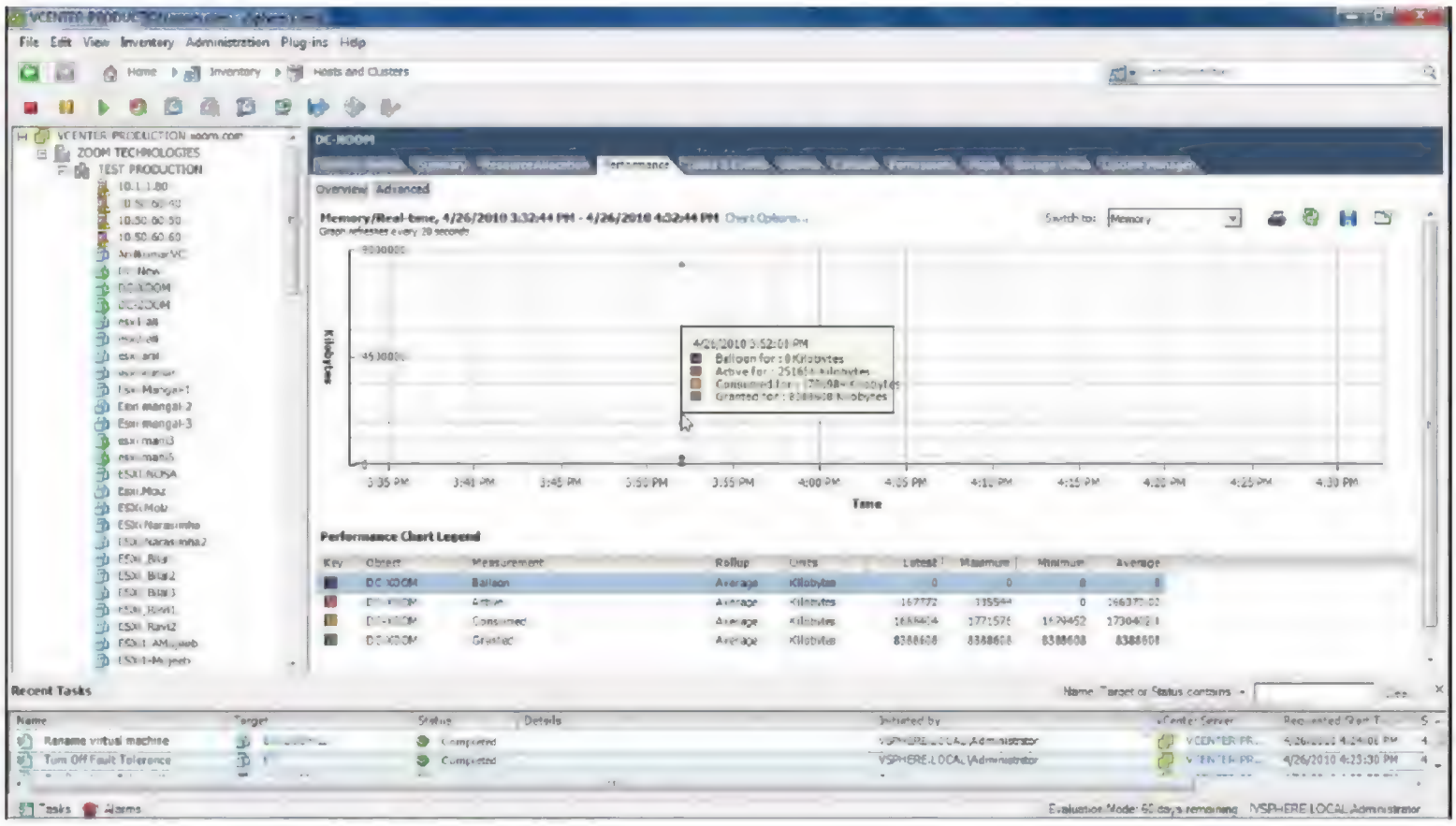


2. Select the VM to be Monitored - Go to Performance Tab



3. Select Advanced Tab, here you can monitor the performance of Virtual Machines CPU

4. Monitor the Virtual Machine memory utilization - Switch to Memory



Observe Balloon Activity

LAB-25: vSPHERE DISTRIBUTED SWITCH

Objective:

To create a vSphere Distributed Switch

Prerequisites:

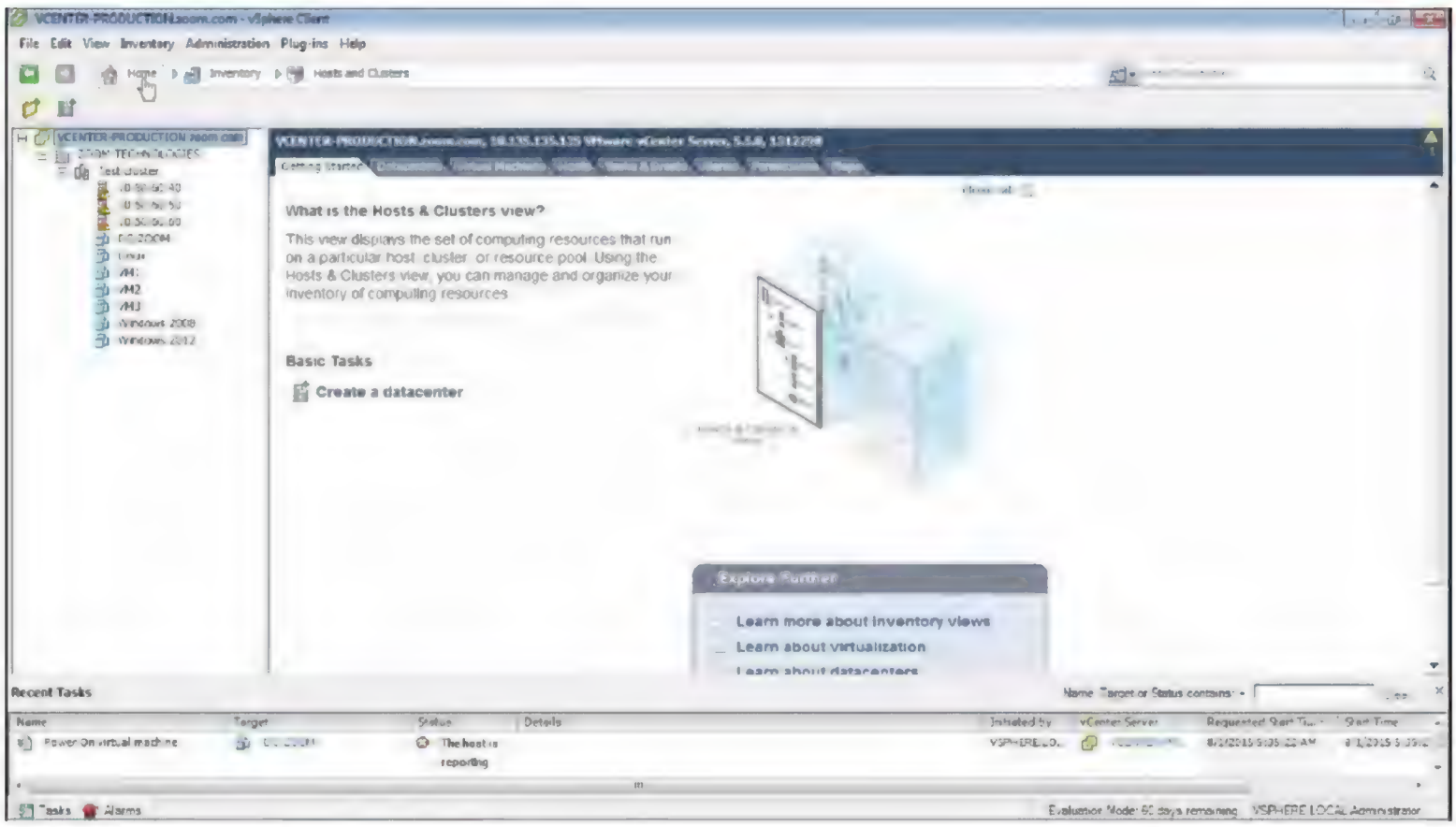
vCenter Server

Tasks:

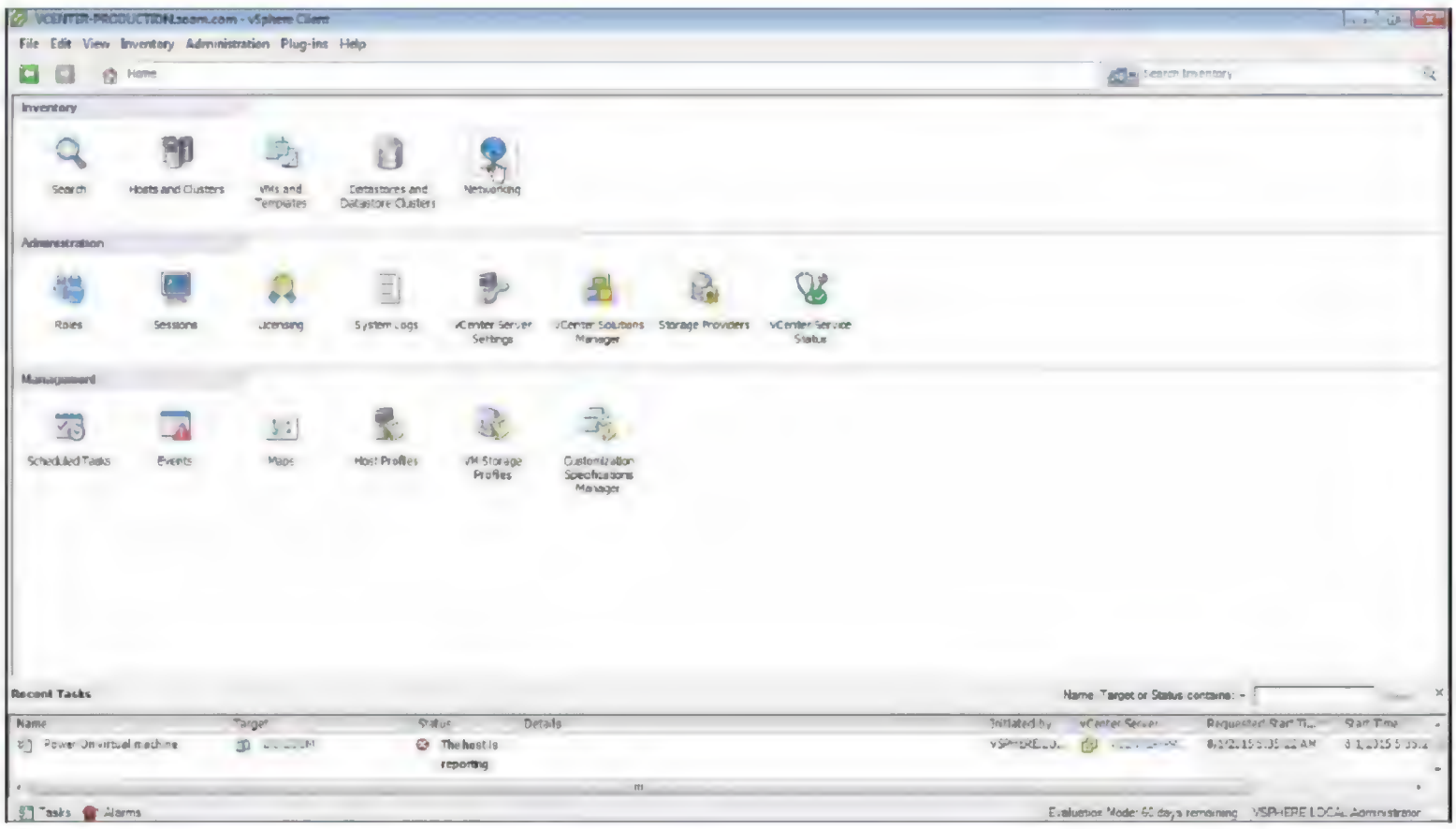
- Create vSphere Distributed Switch
- Create a dvPort group
- Migrate virtual machines from standard switch to distributed switch
- Create vmkernel port

Steps:

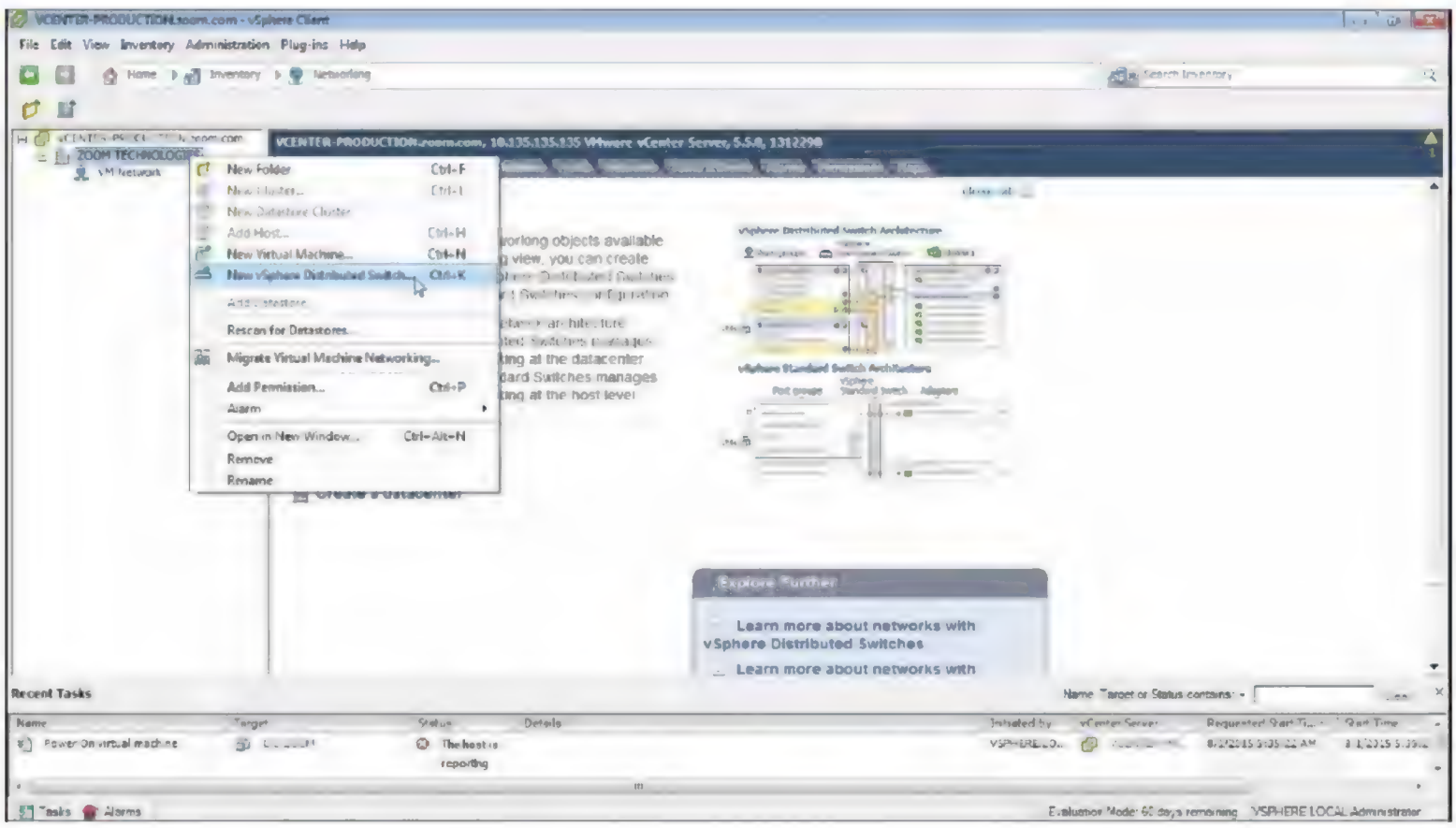
1. Login to vCenter Server



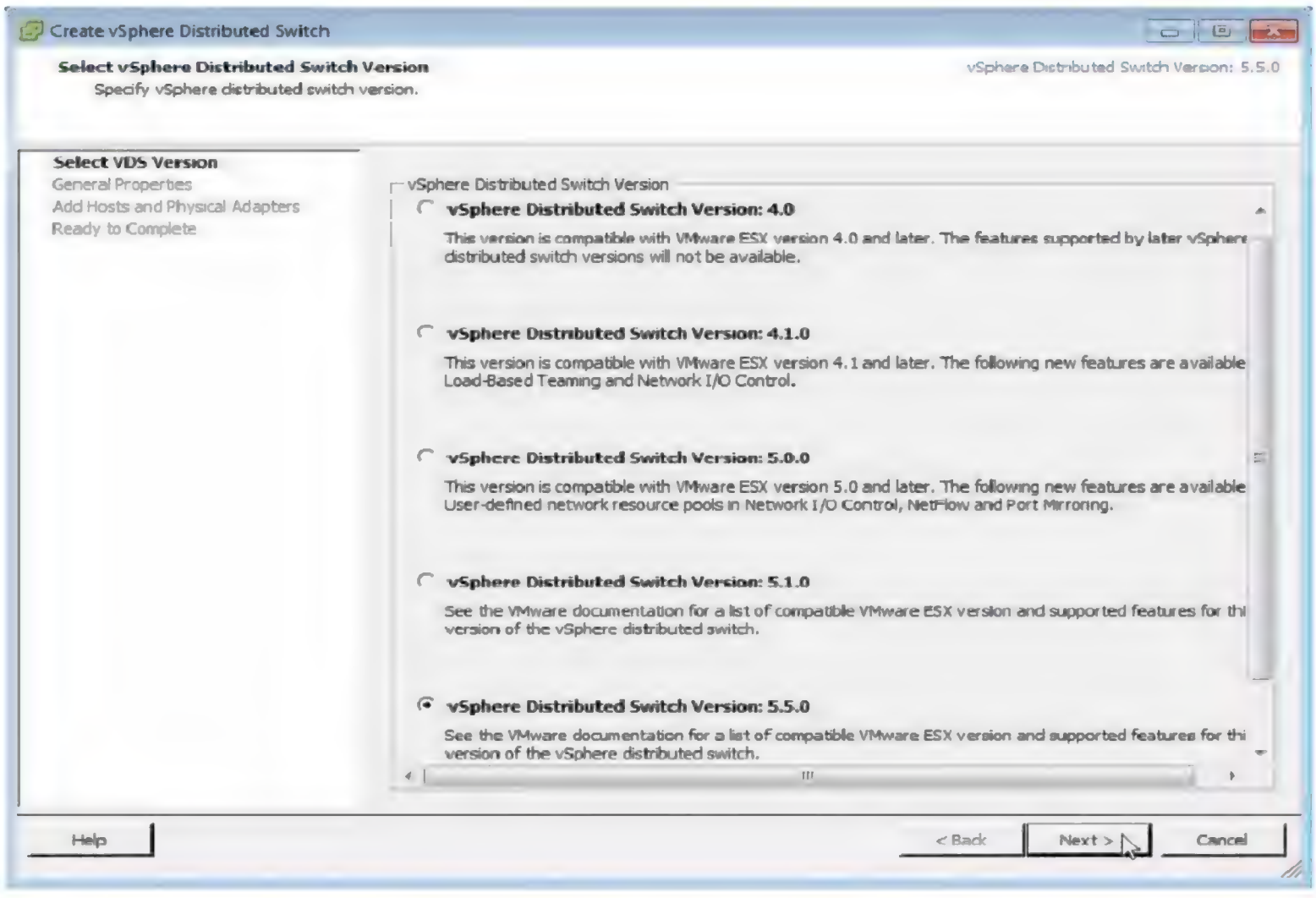
2. Go to Home



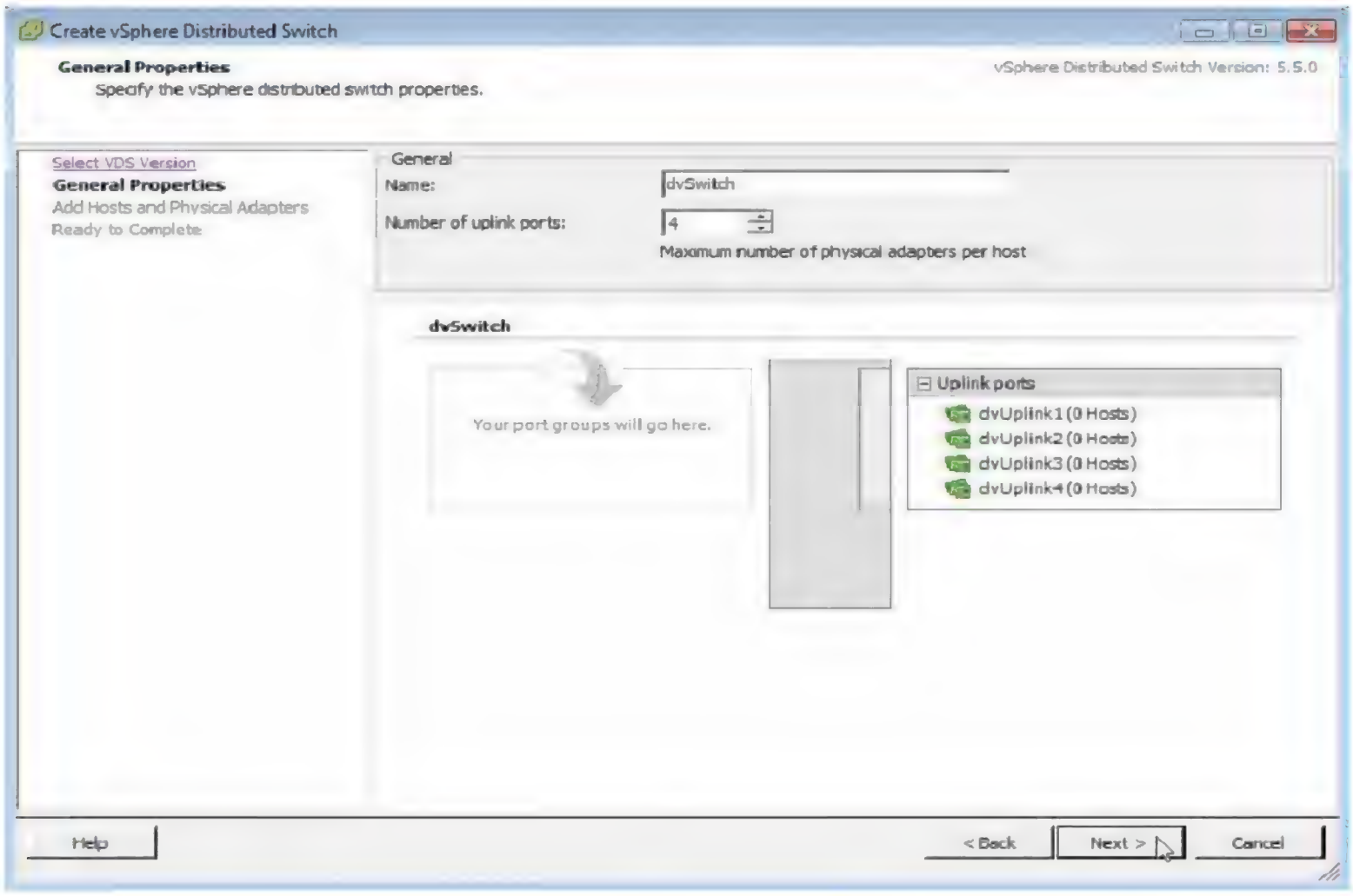
3. Click on Networking under inventory section



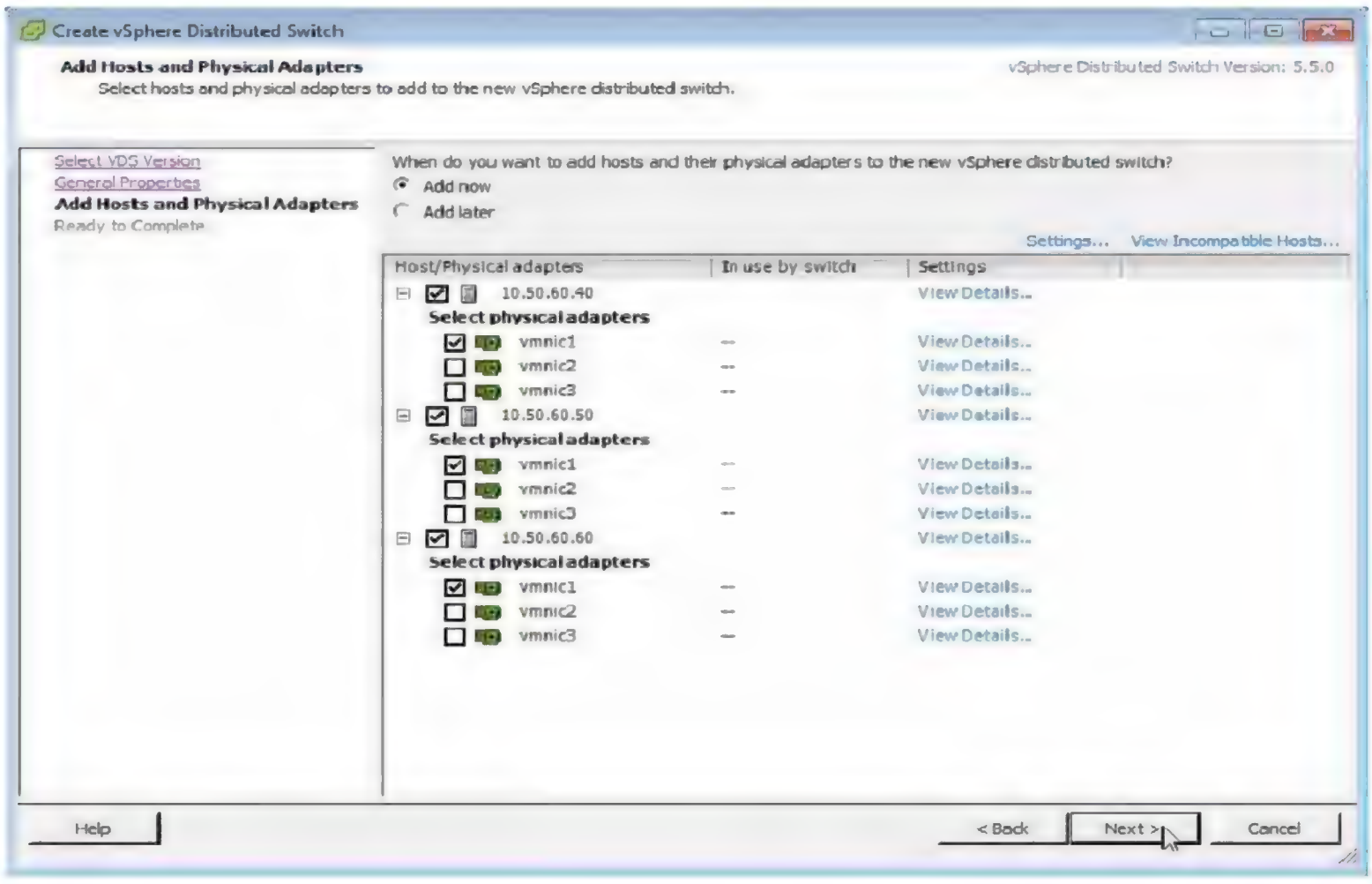
4. Right click Datacenter - New vSphere Distributed Switch



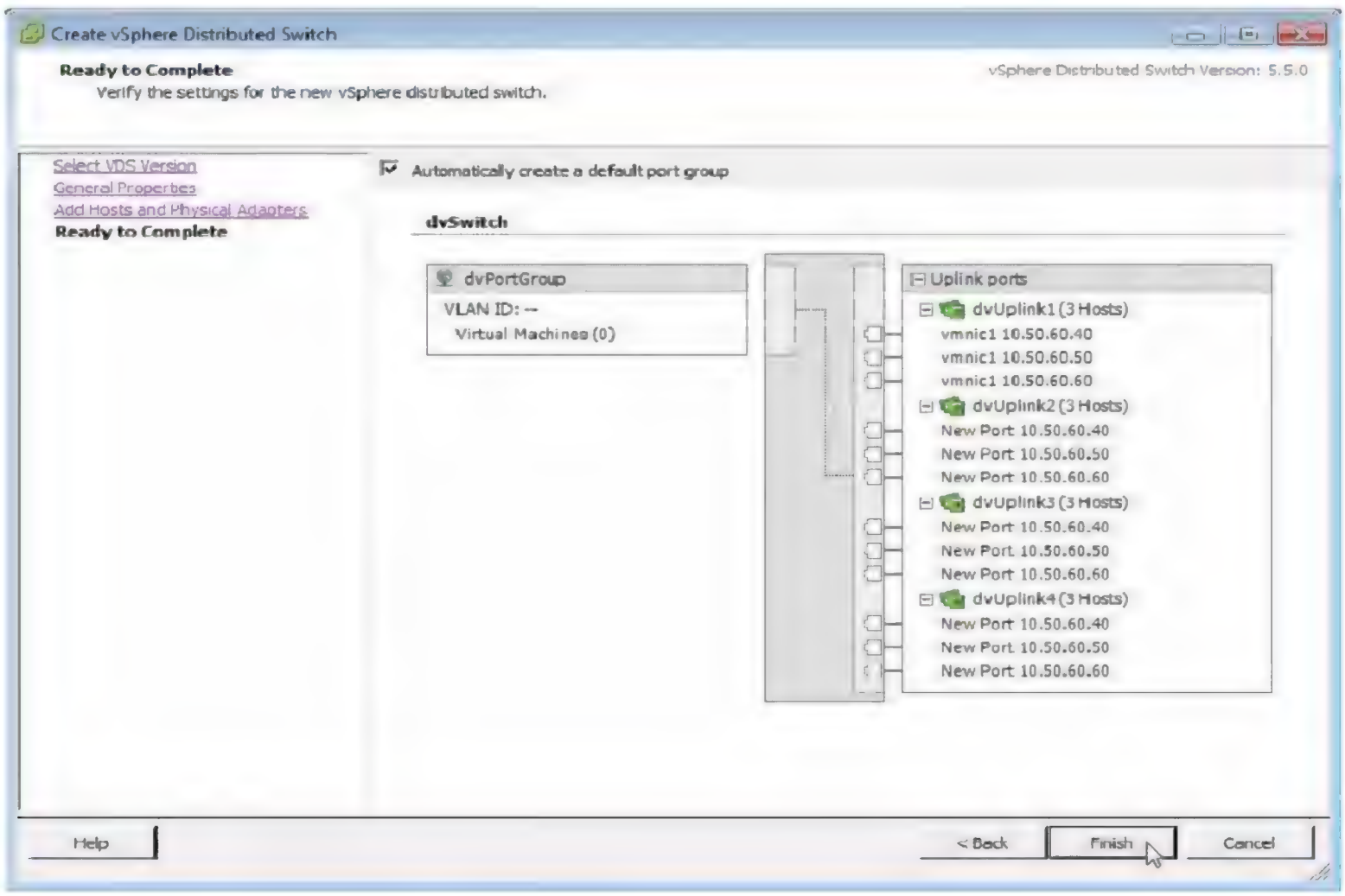
5. Select the vSphere Distributed Switch Version - Next to continue



6. Enter a Name for the switch if required, Next to continue

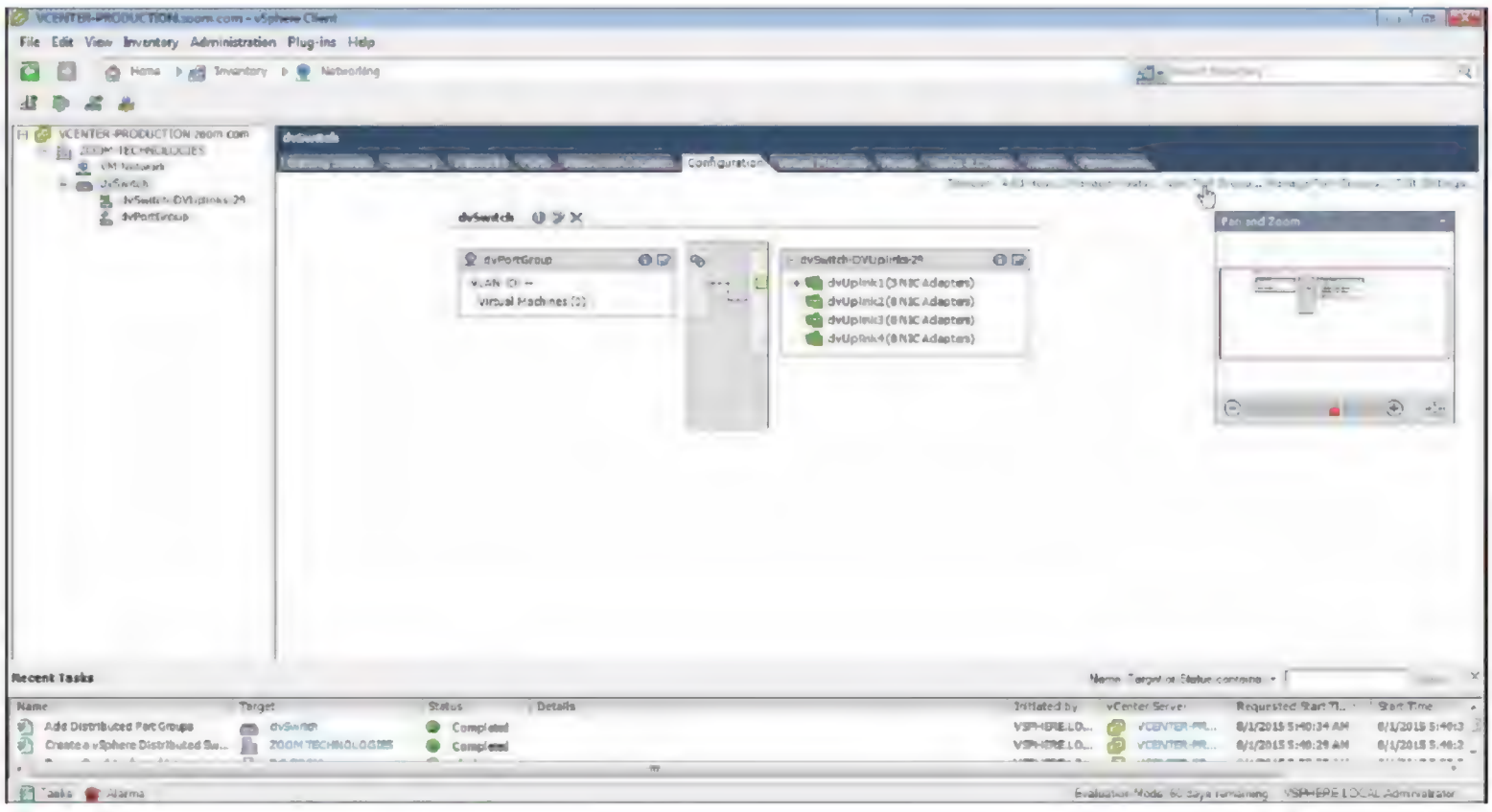


7. Select the Hosts and physical adapters to be added, Next to continue



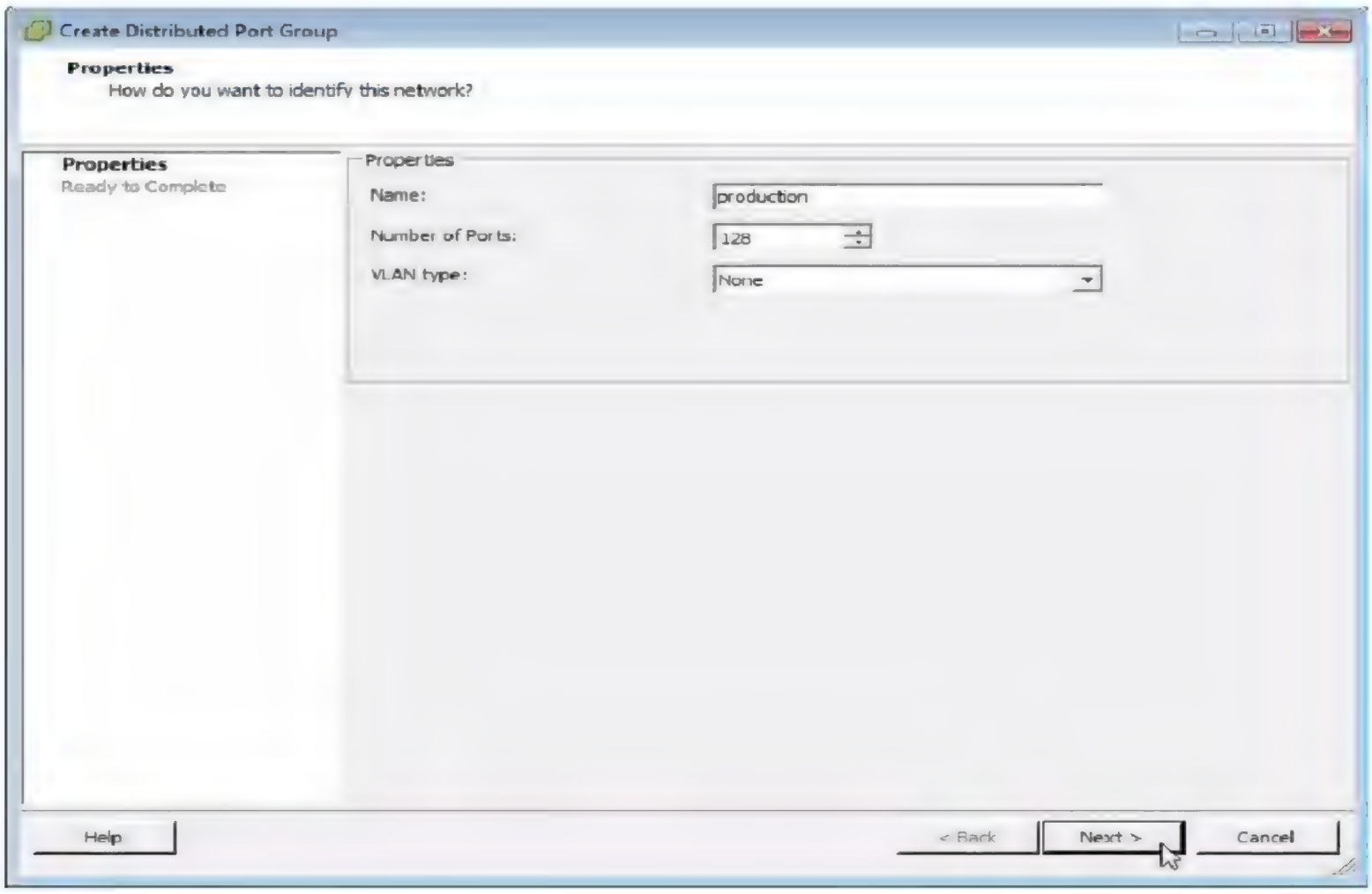
8. Finish to create a vSphere Distributed Switch

Creating a New Distributed Port Group on dvSwitch

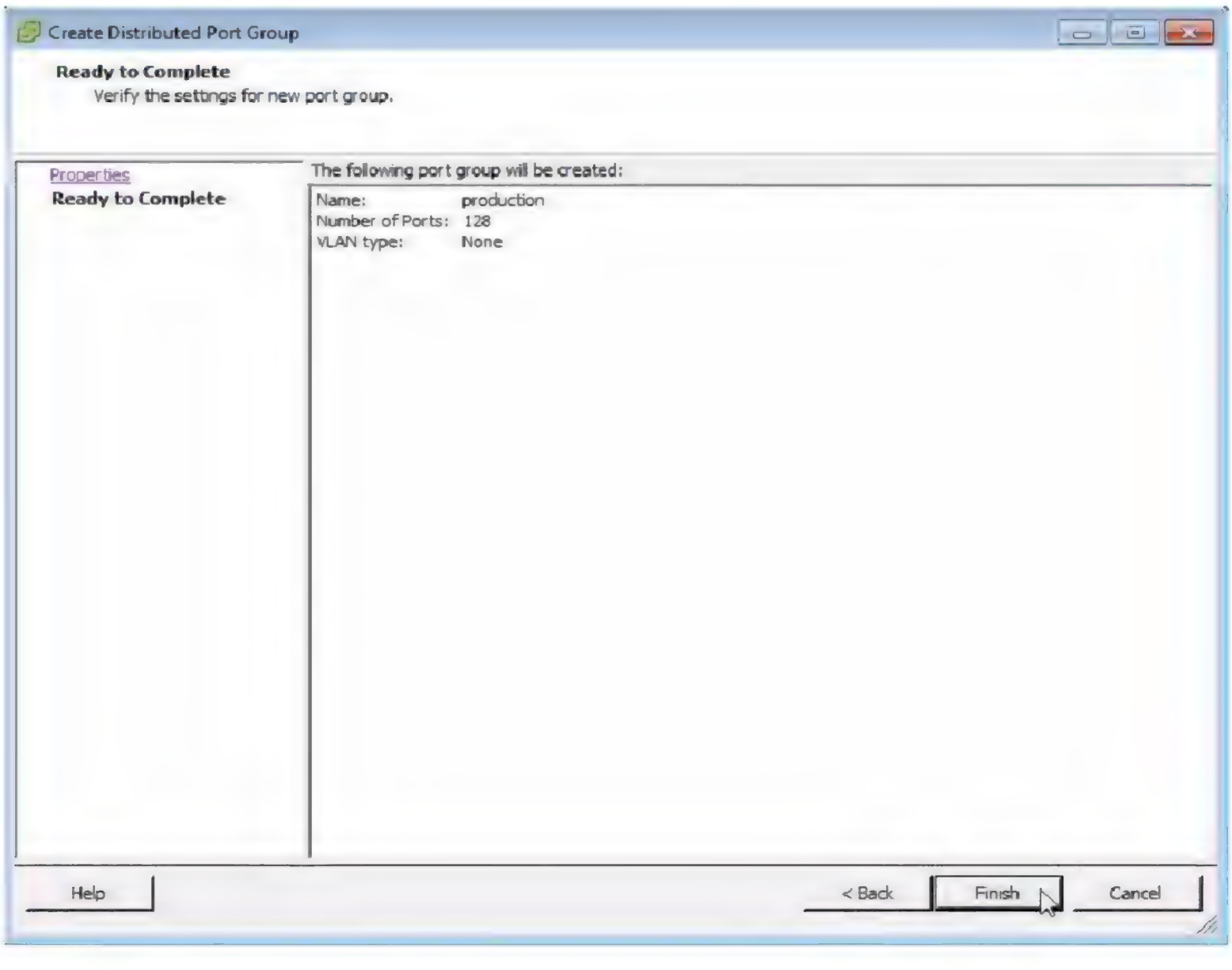


Steps:

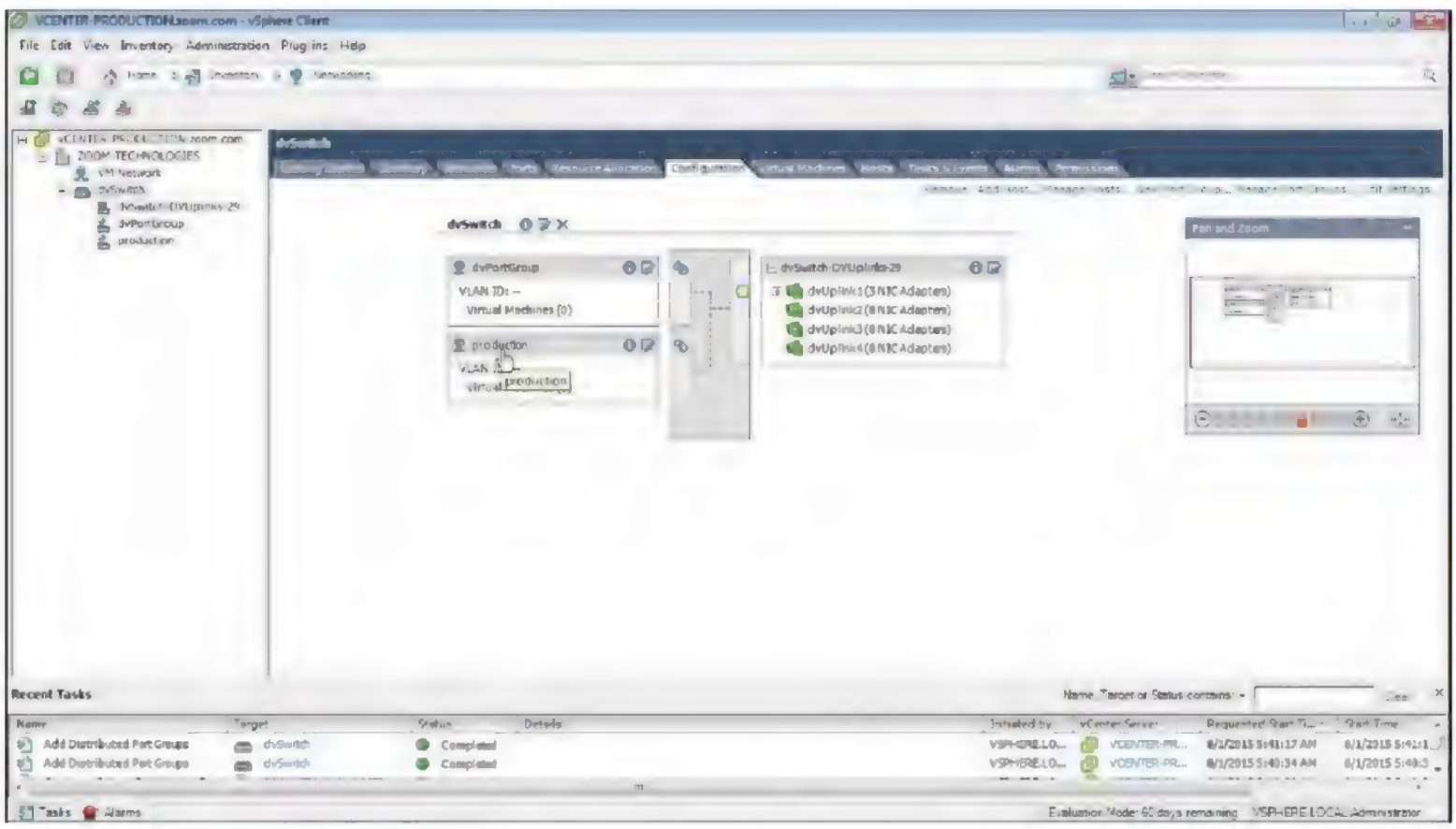
1. Click on New Port Group



2. Enter a Name to the port group, Next to continue

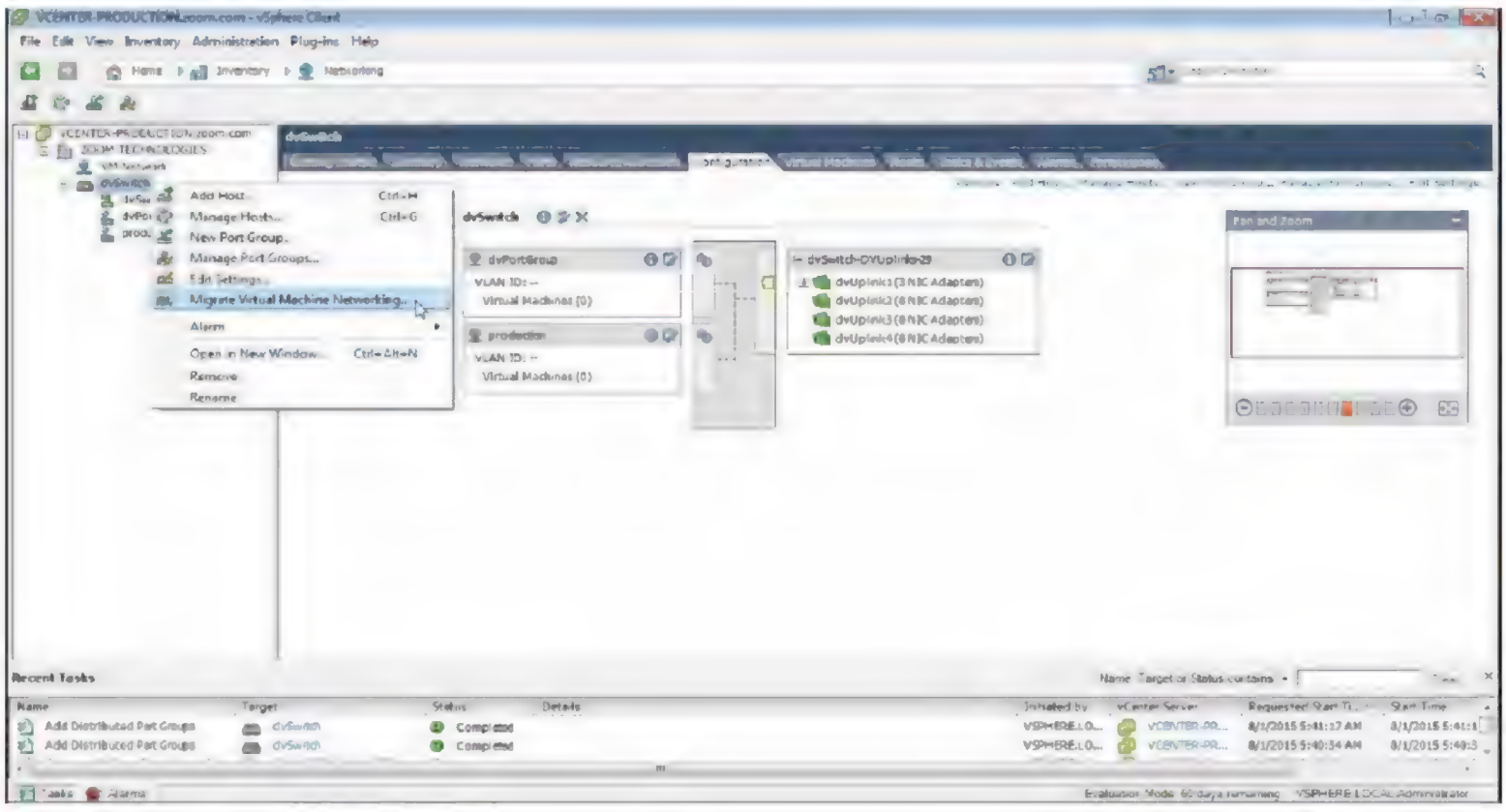


3. Finish to create a port group



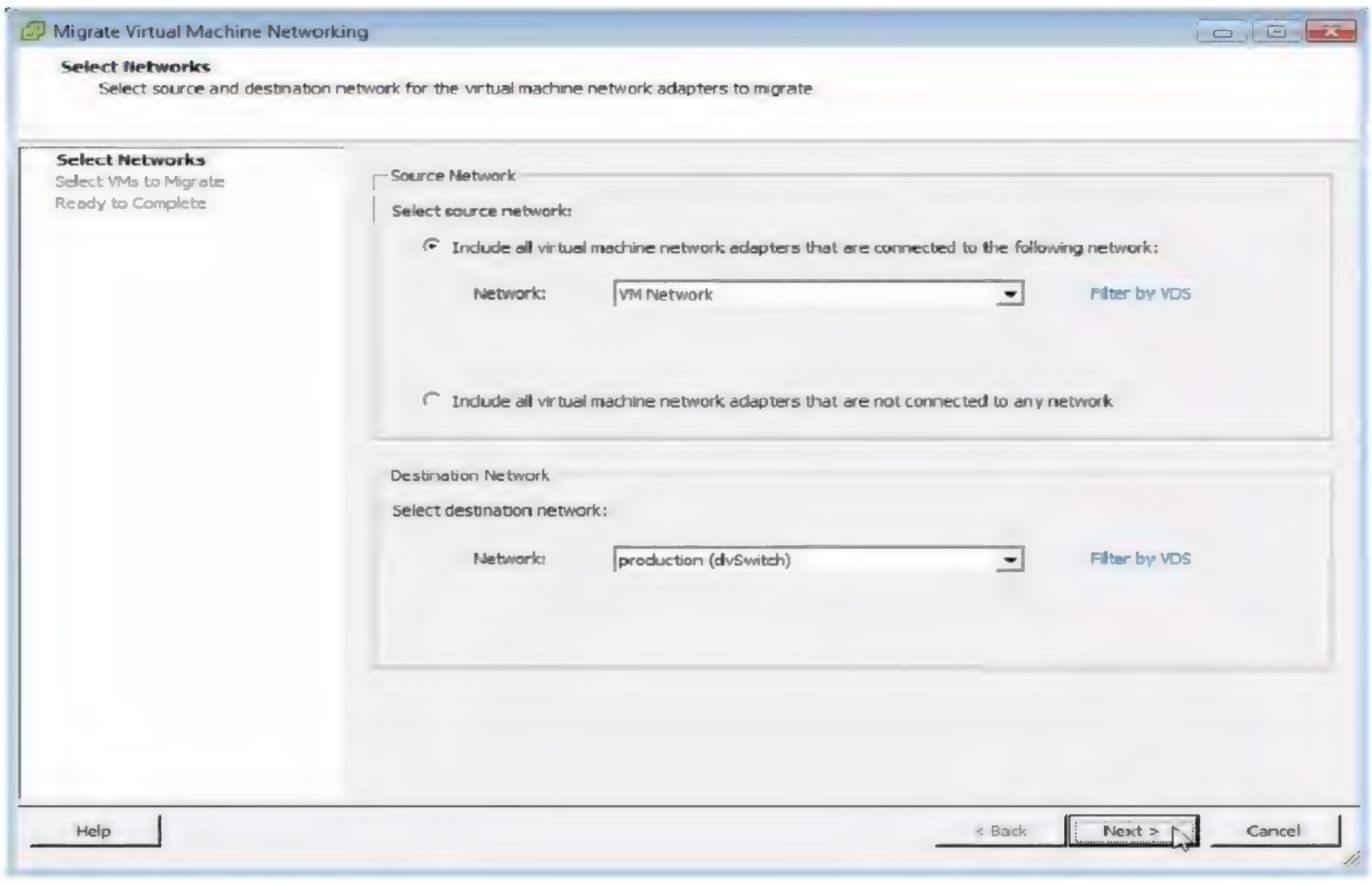
Observe a new port group is created

Migrate Virtual Machine Networking

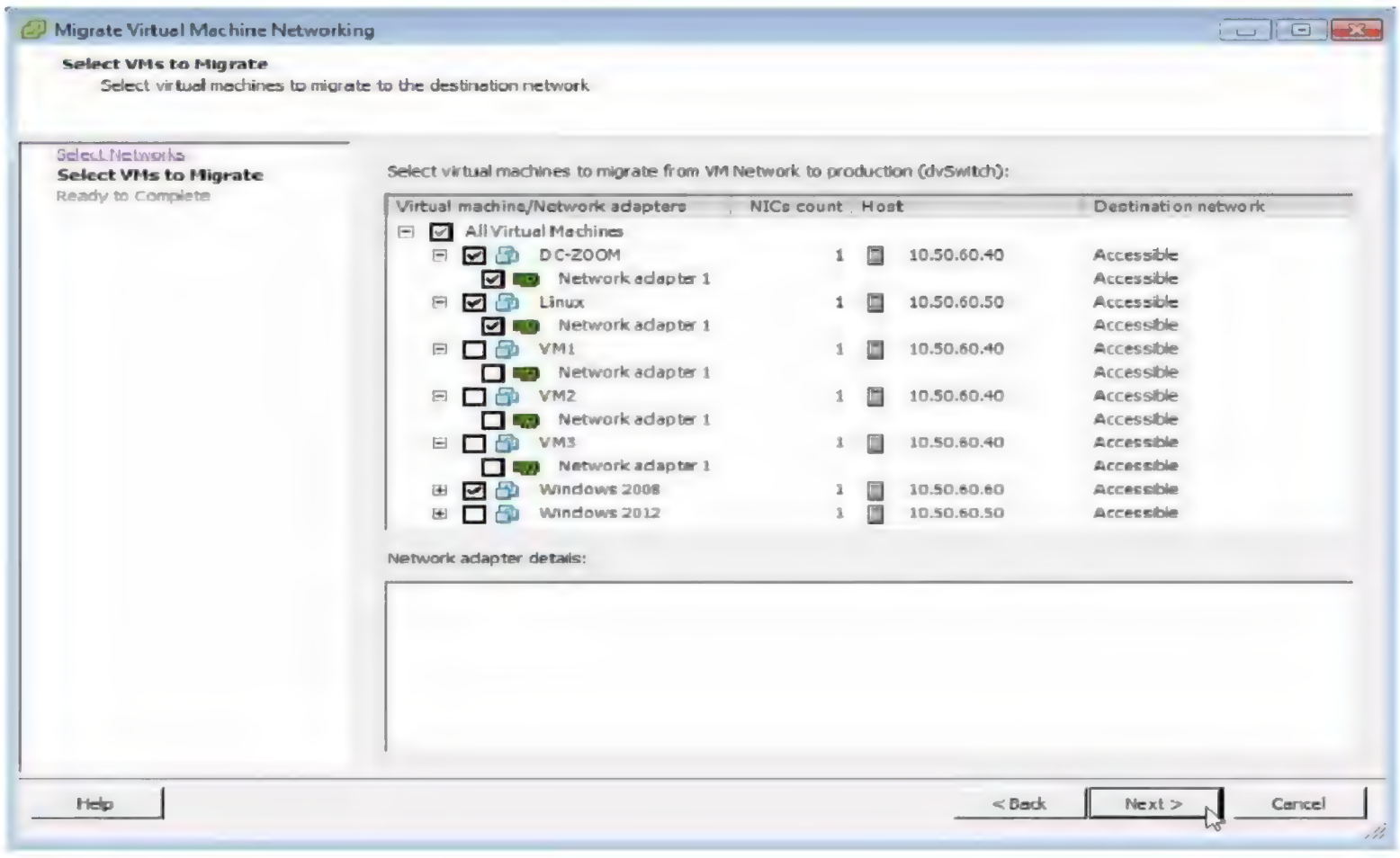


Steps:

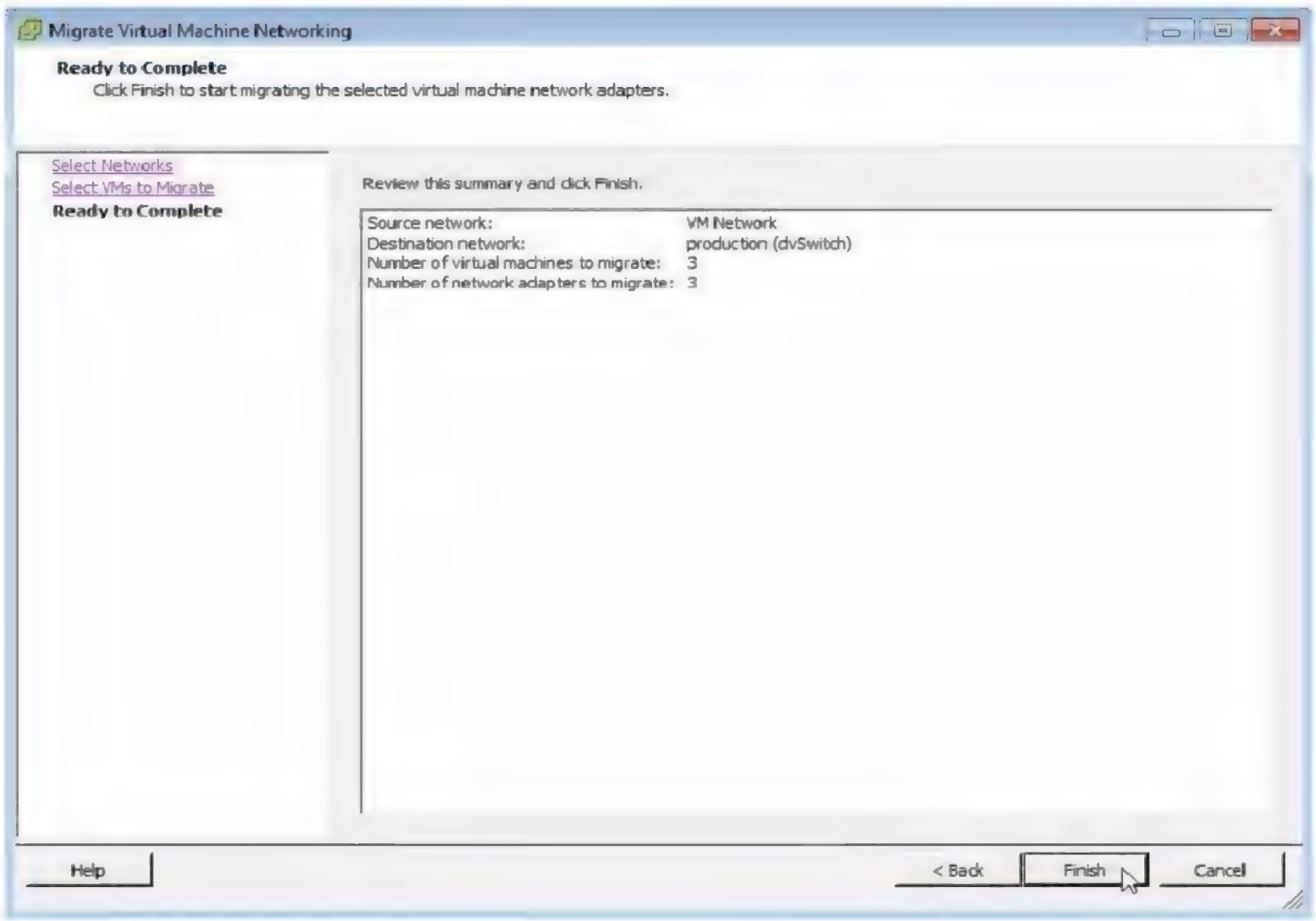
1. Right click dvSwitch - Migrate Virtual Machine Networking



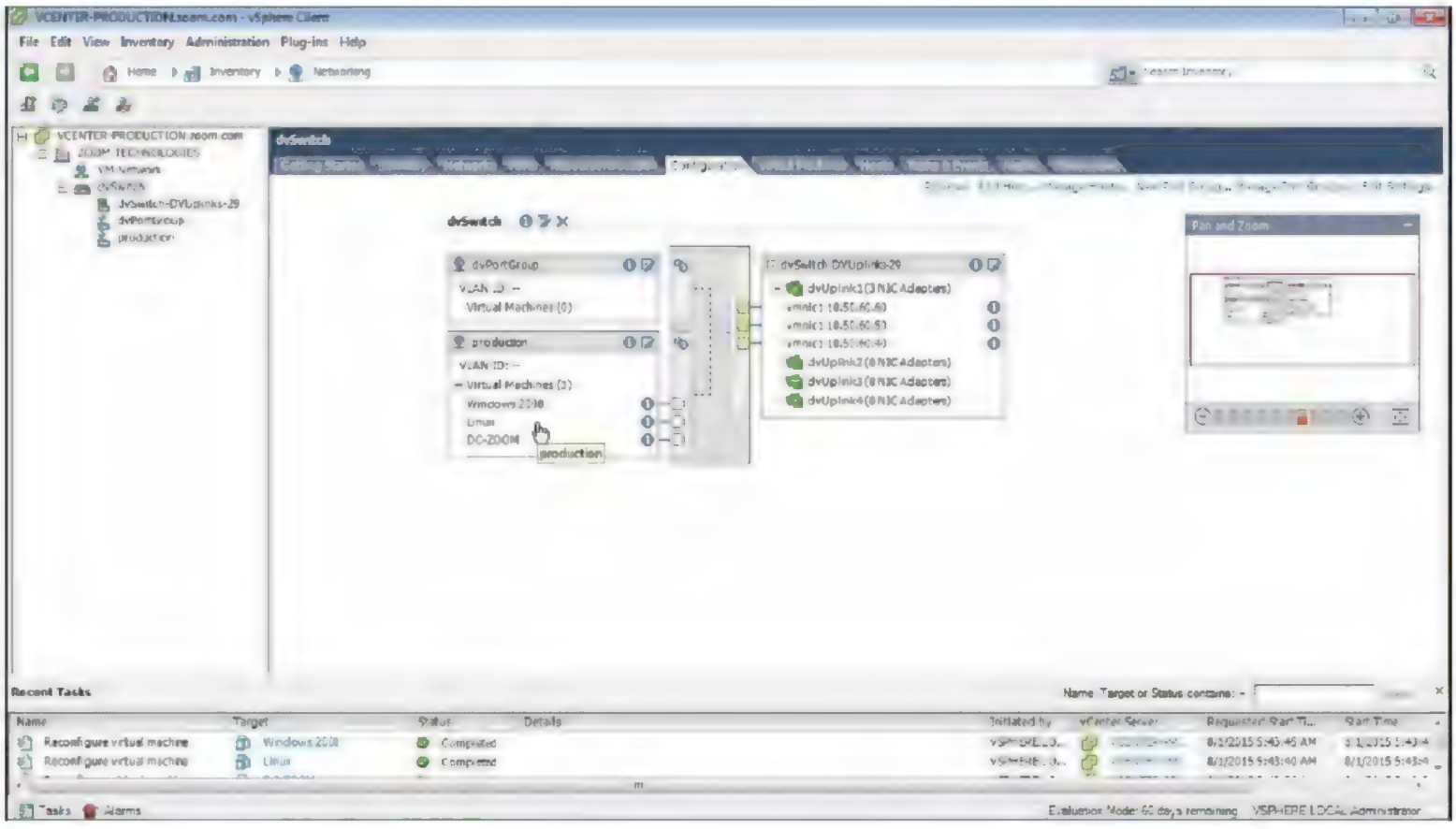
2. Select the Source Network and the Destination Network, Next to continue



3. Select the VMs to Migrate, Next to continue



4. Finish to migrate VMs

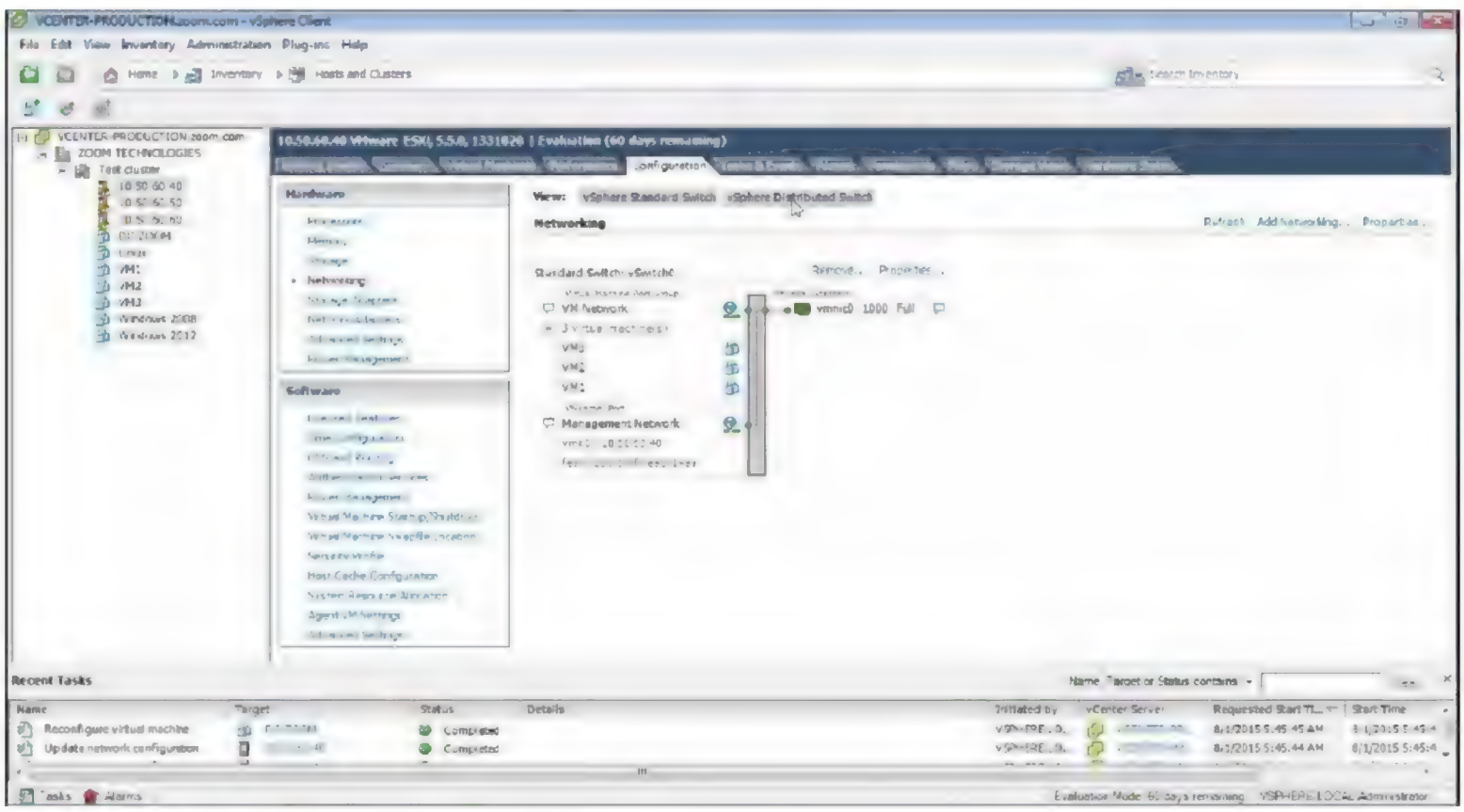


Observe the VMs are now connected to a port group on dvSwitch

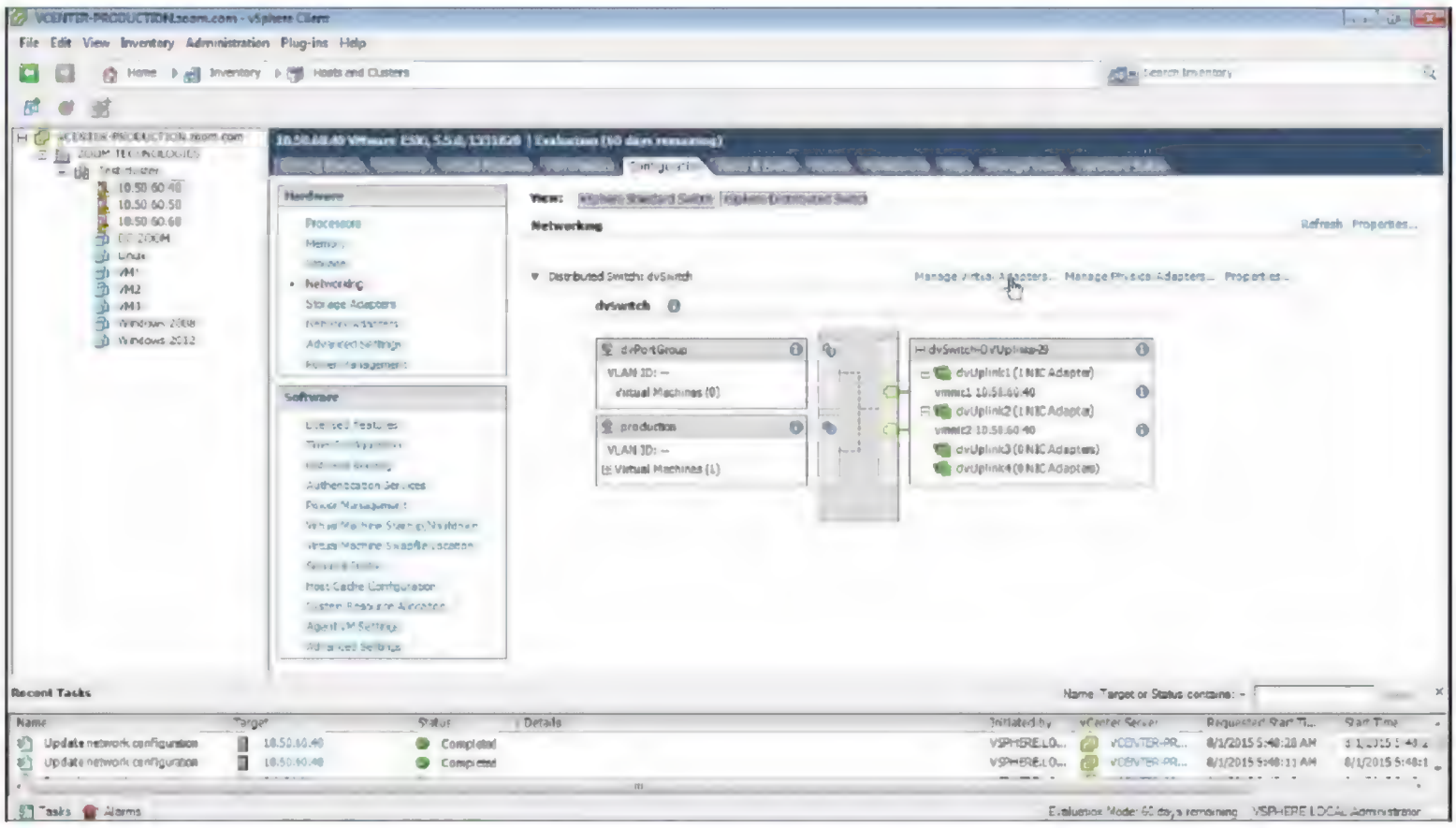
Creating a VMkernel Port on a dvSwitch

Steps:

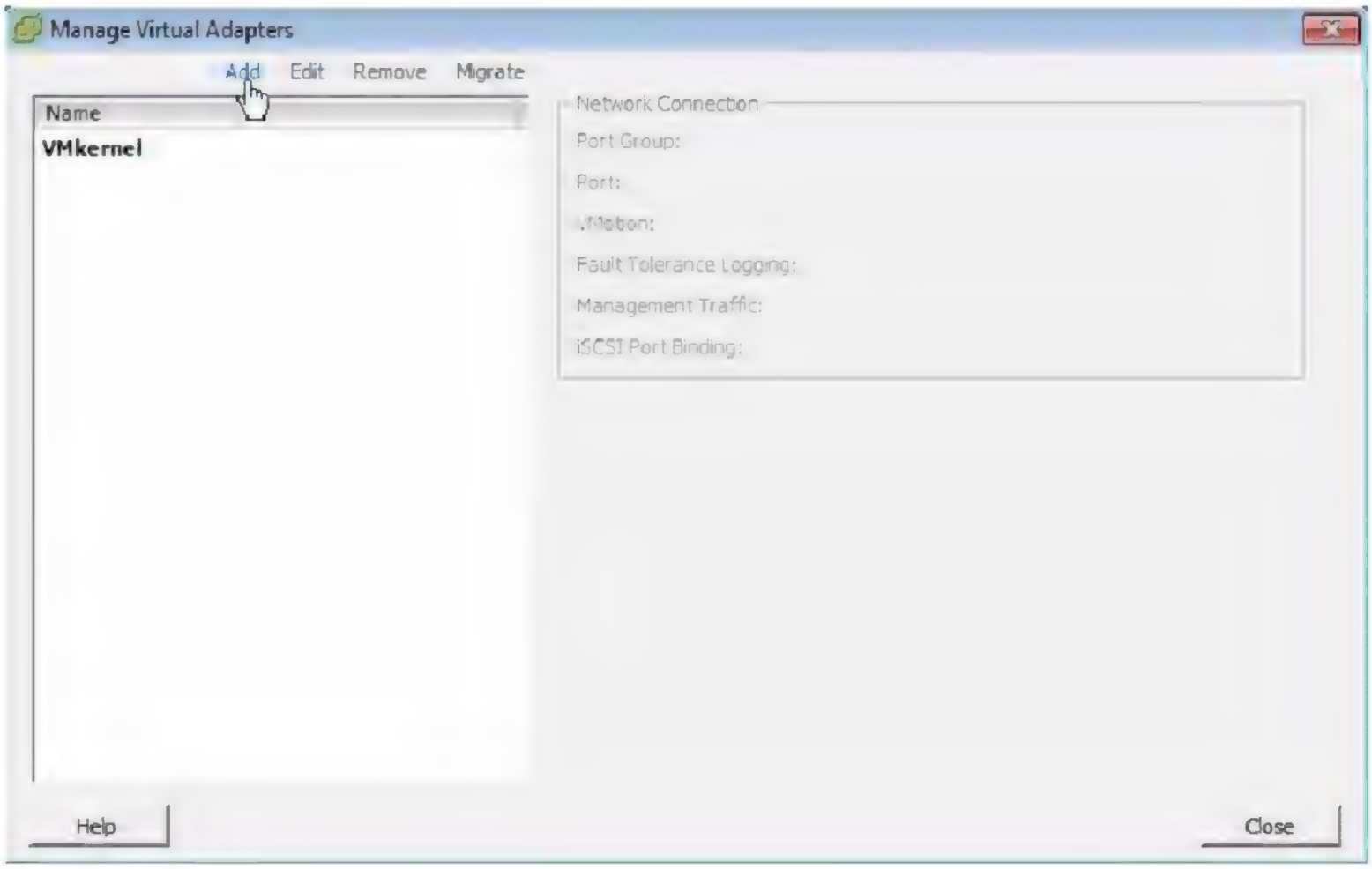
1. Go to Inventory - Host & Clusters on vSphere Client



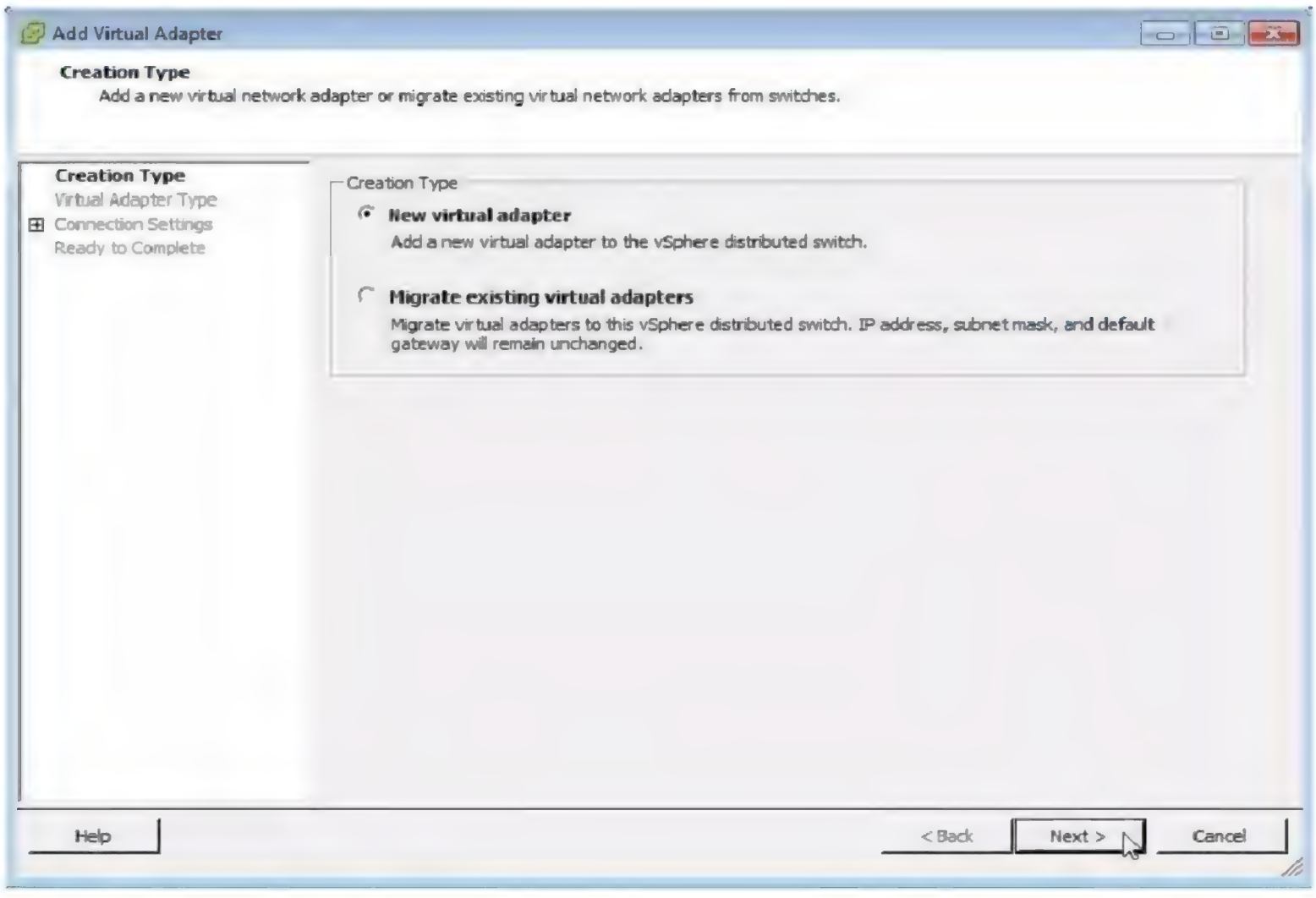
2. Select the Host - Go to Configuration Tab - Select vSphere Distributed Switch



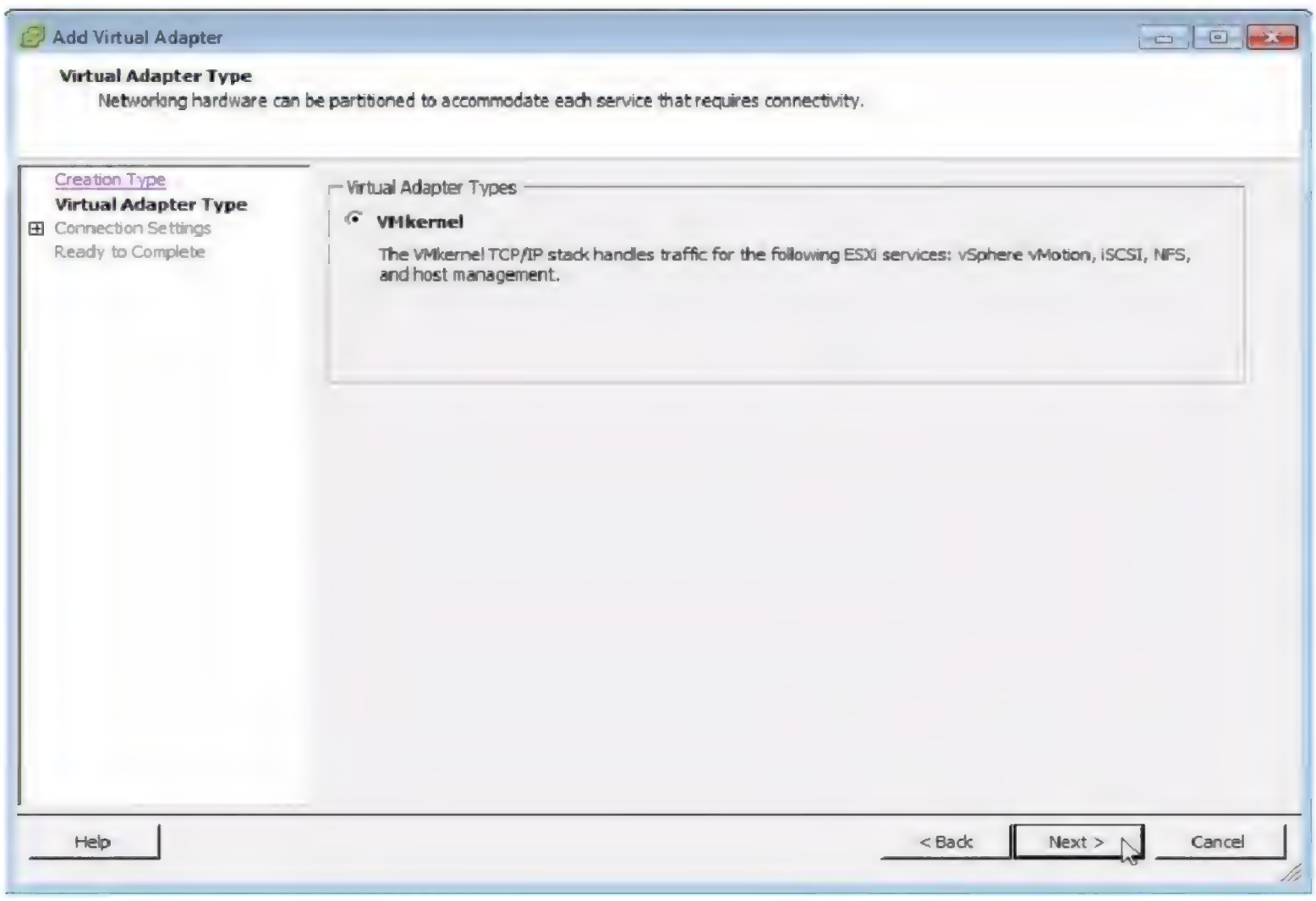
3. Click on Manage Virtual Adaptors



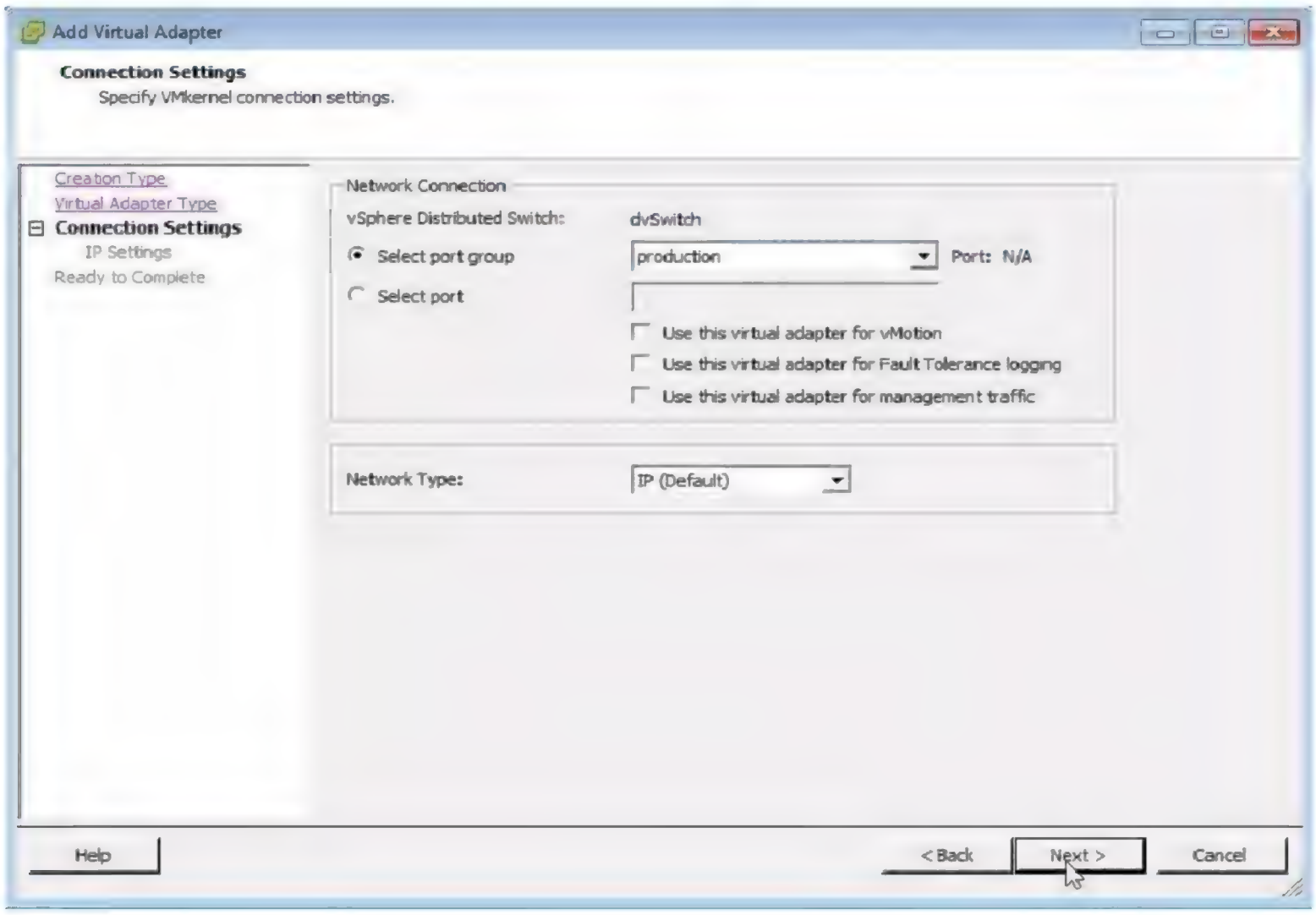
4. Click Add to create a vmkernel port



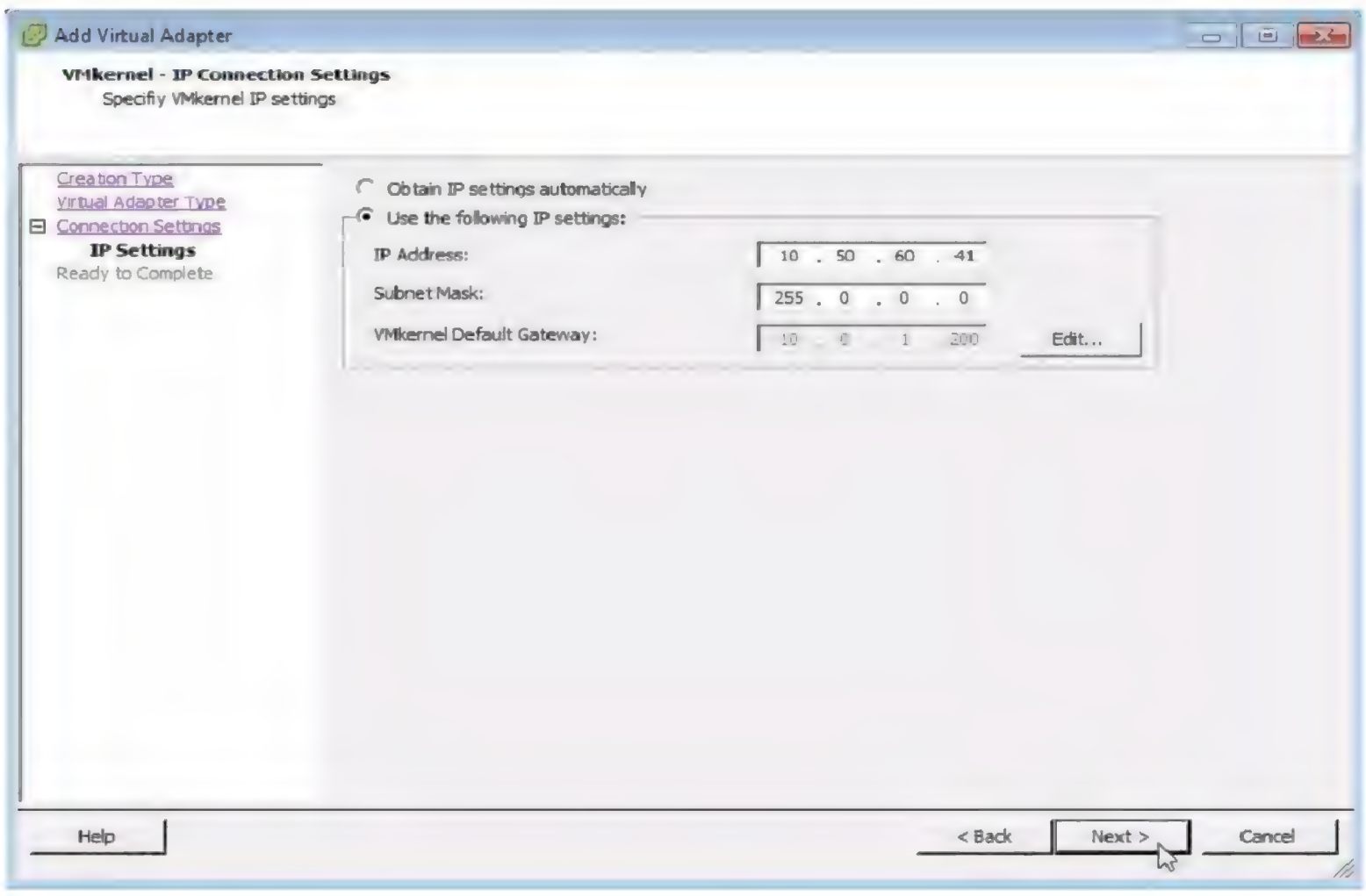
5. Select New virtual adaptor, Next to continue



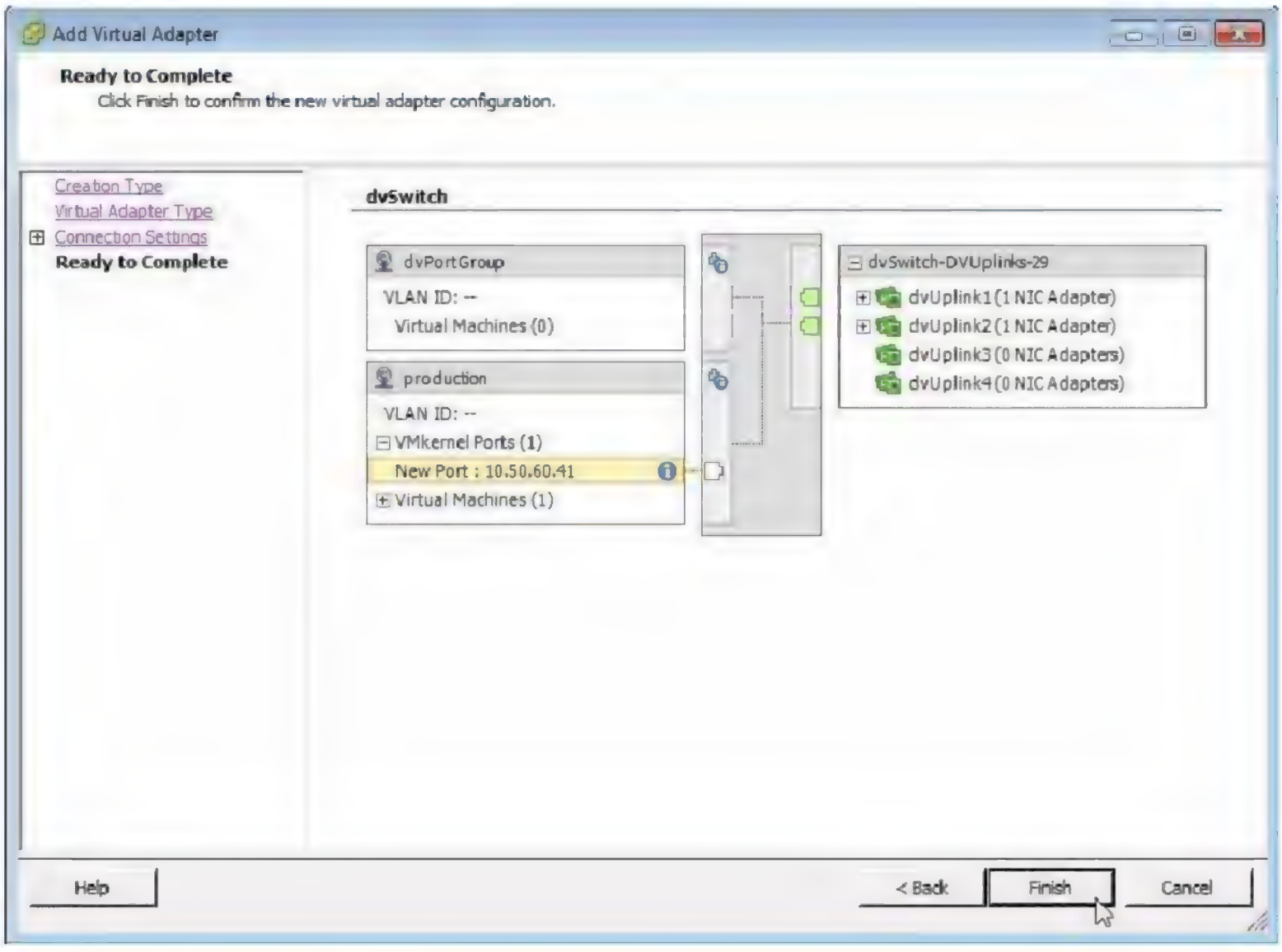
6. Next to continue



7. Select a port group, Next to continue



8. Enter the desired IP and Subnet, Next to continue



9. Finish to create a vmkernel port

Observe a vmkernel port is created on vSphere Distributed Switch

LAB-26: HOST PROFILES

Objective:

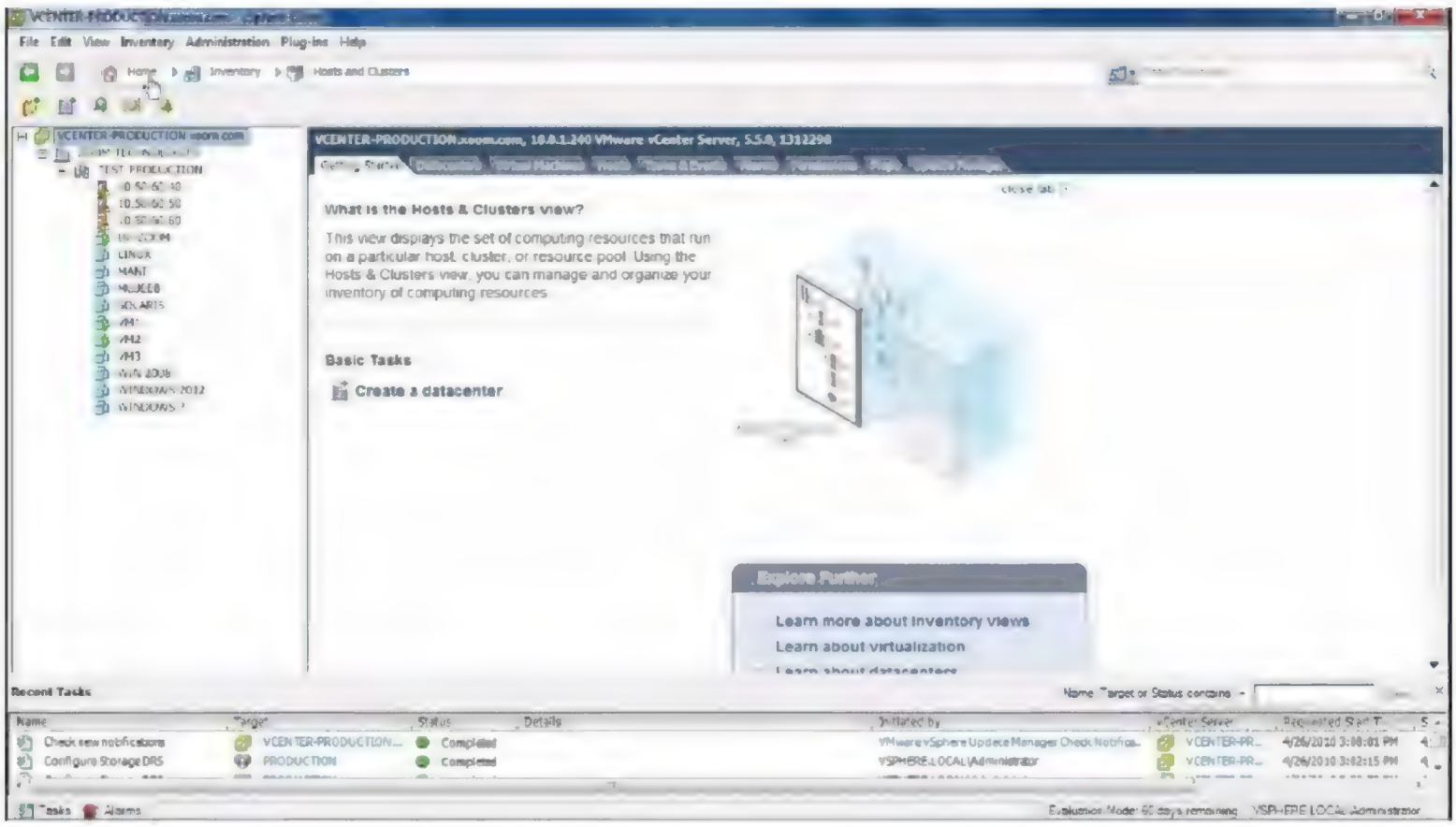
To create a Host Profile and apply it on other Hosts

Prerequisites:

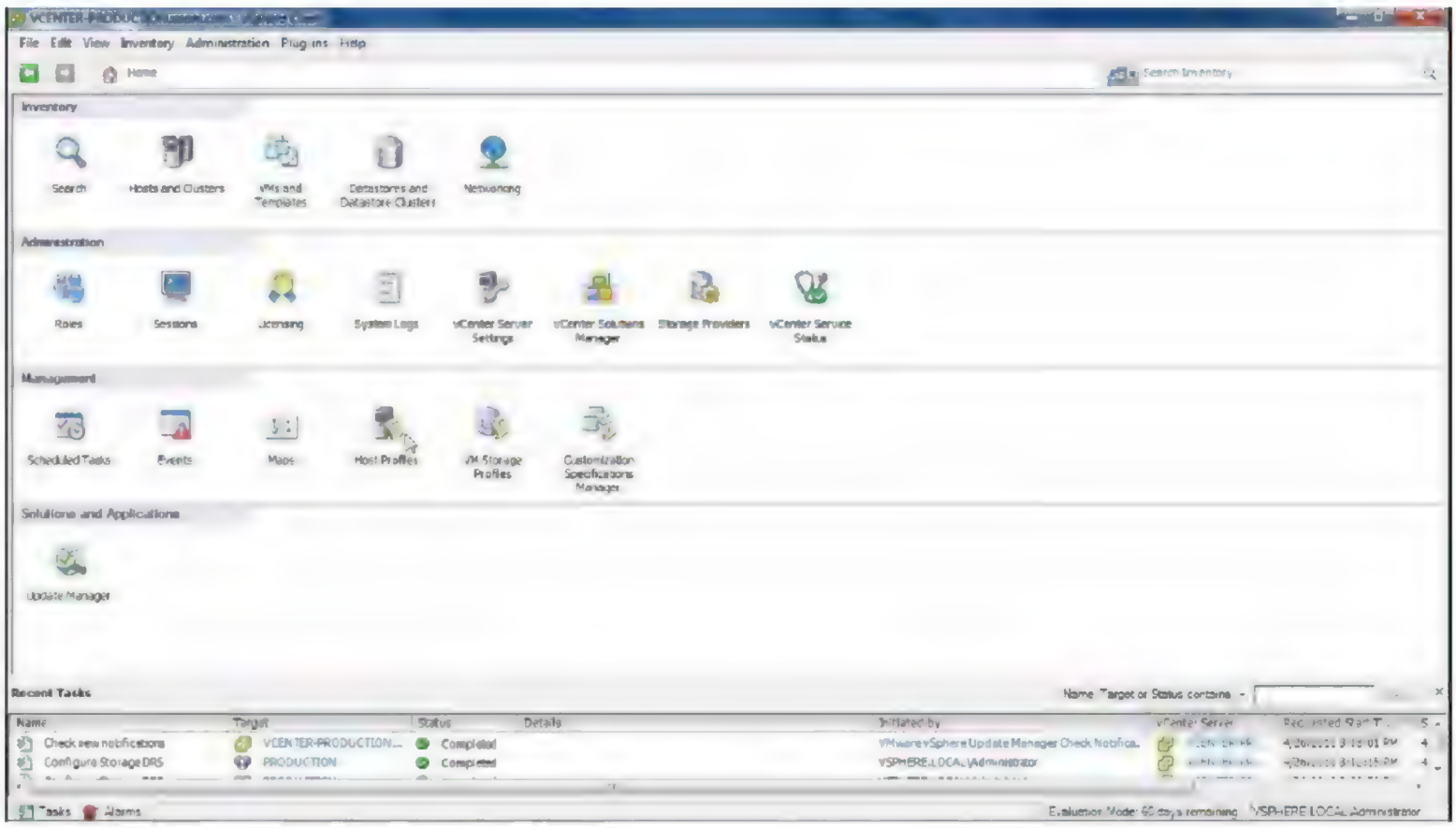
vCenter Server

Steps:

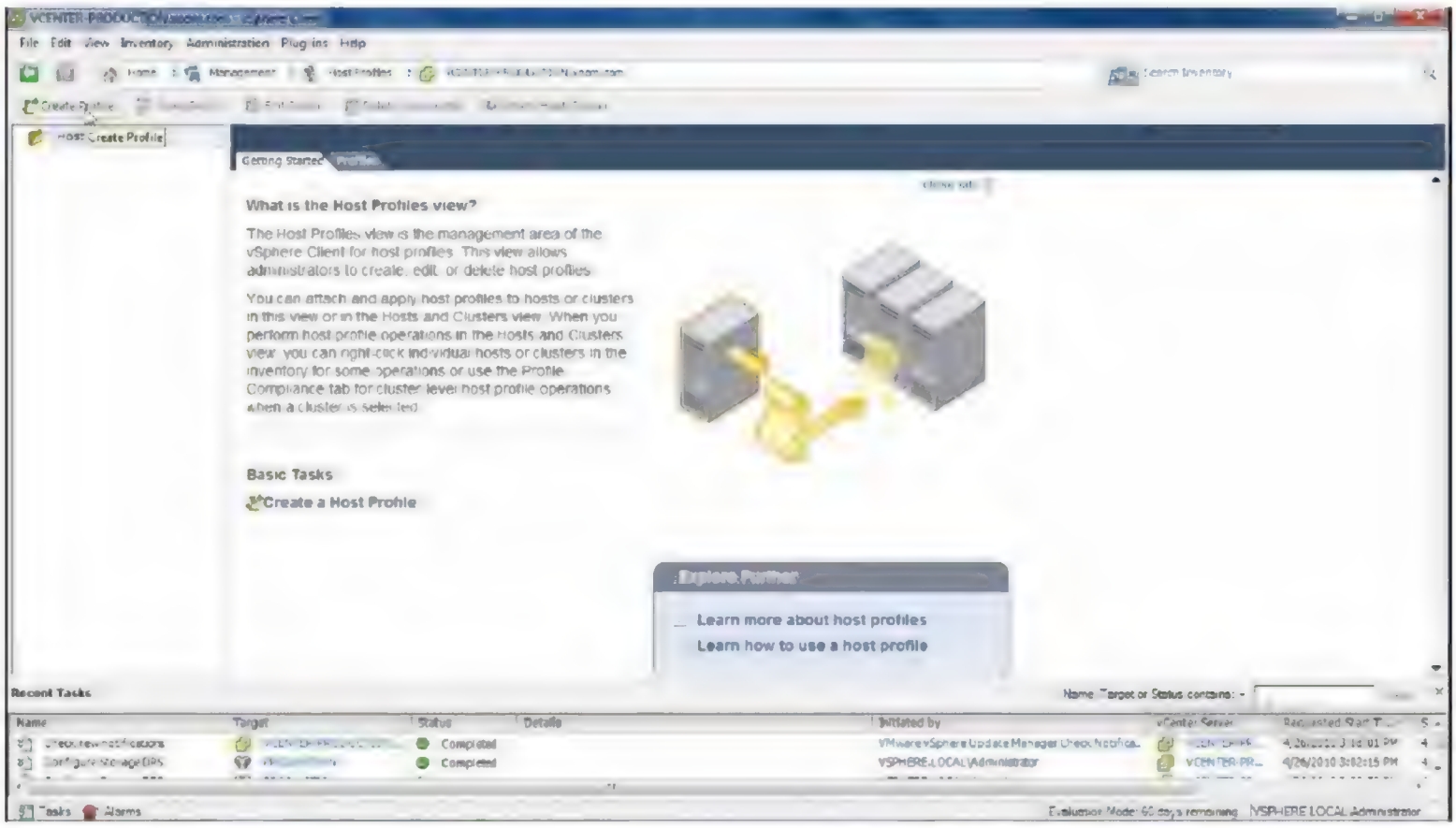
1. Login to vCenter Server



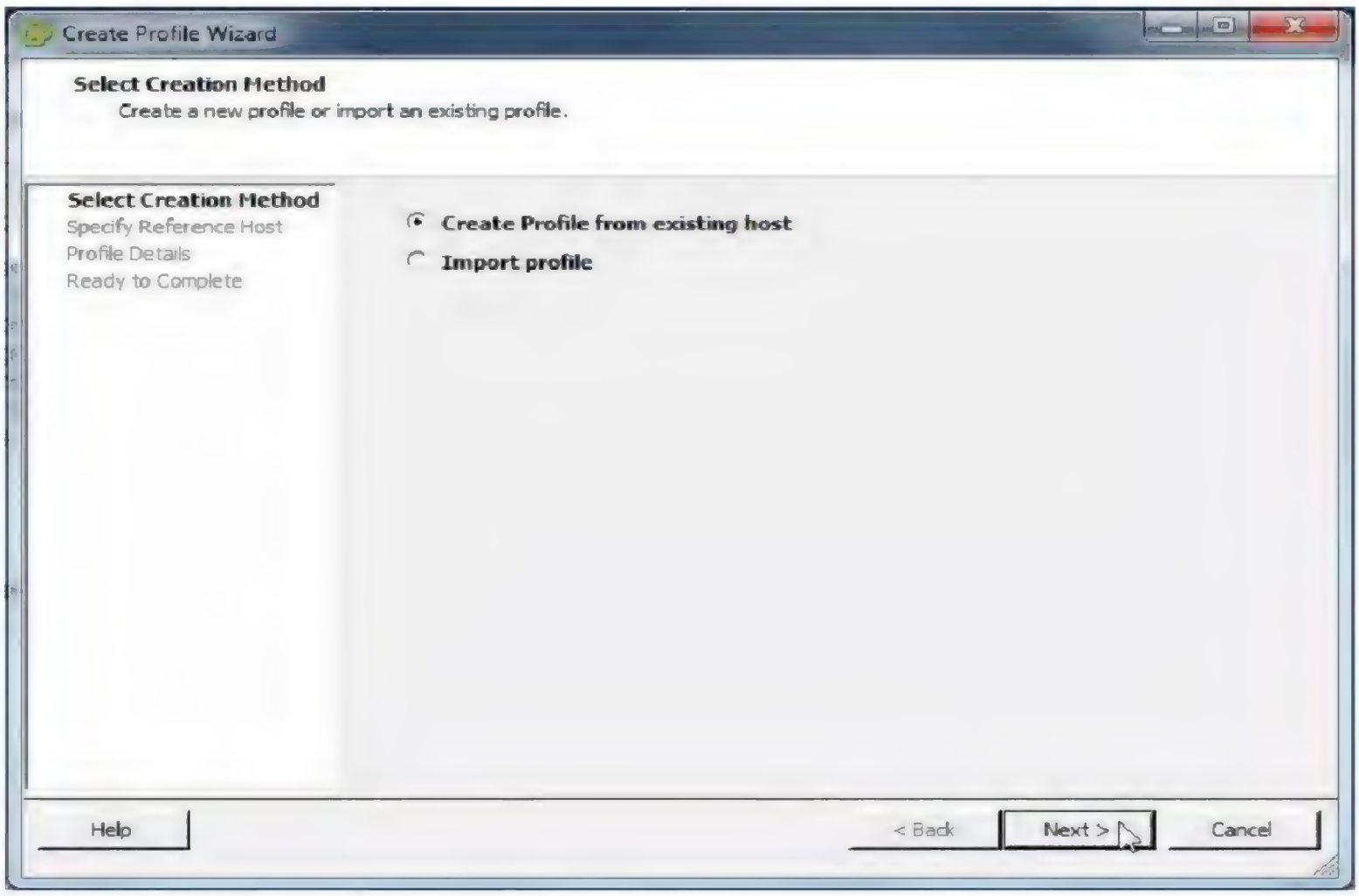
2. Click on Home



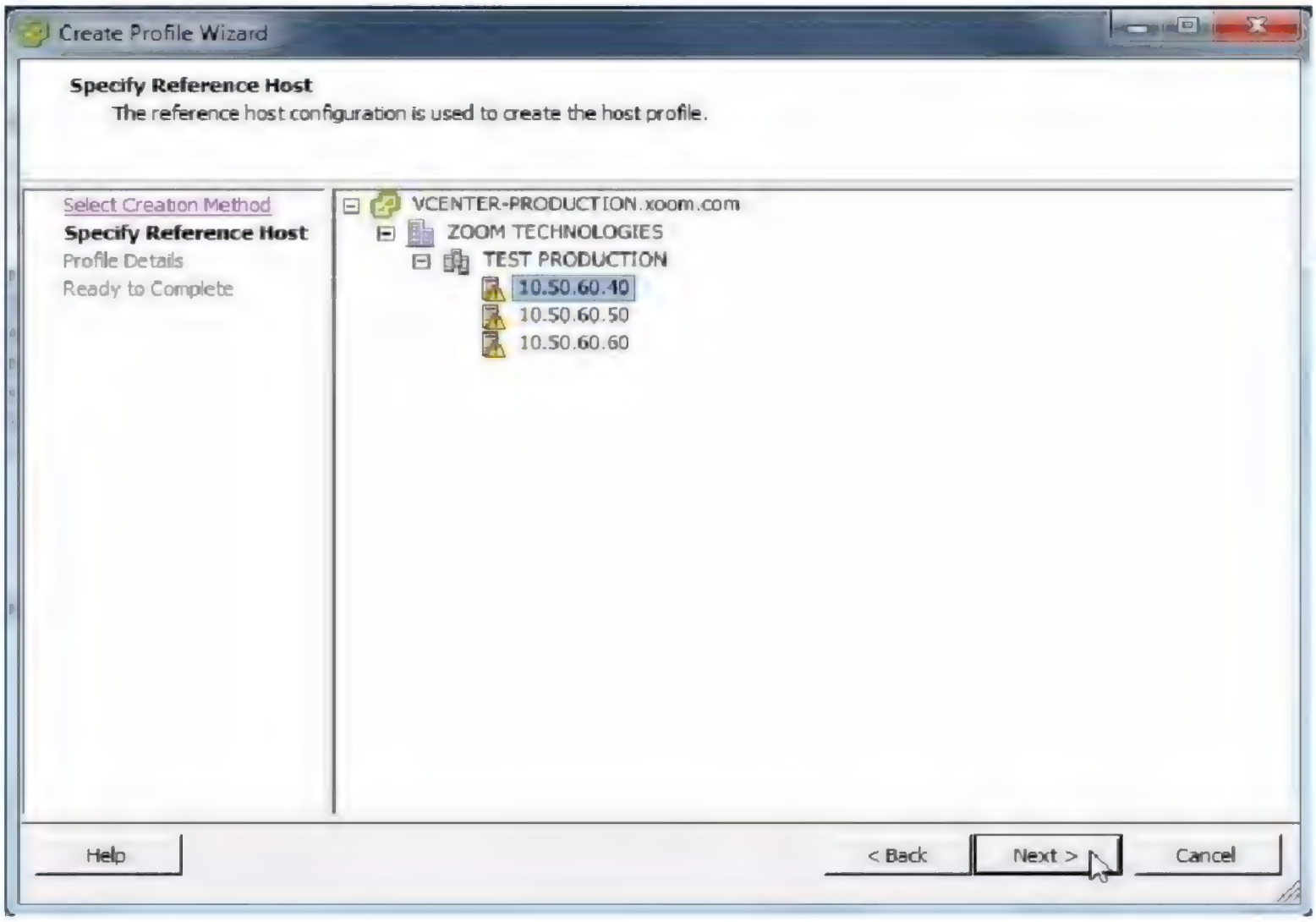
3. Under Management Section Select Host Profiles



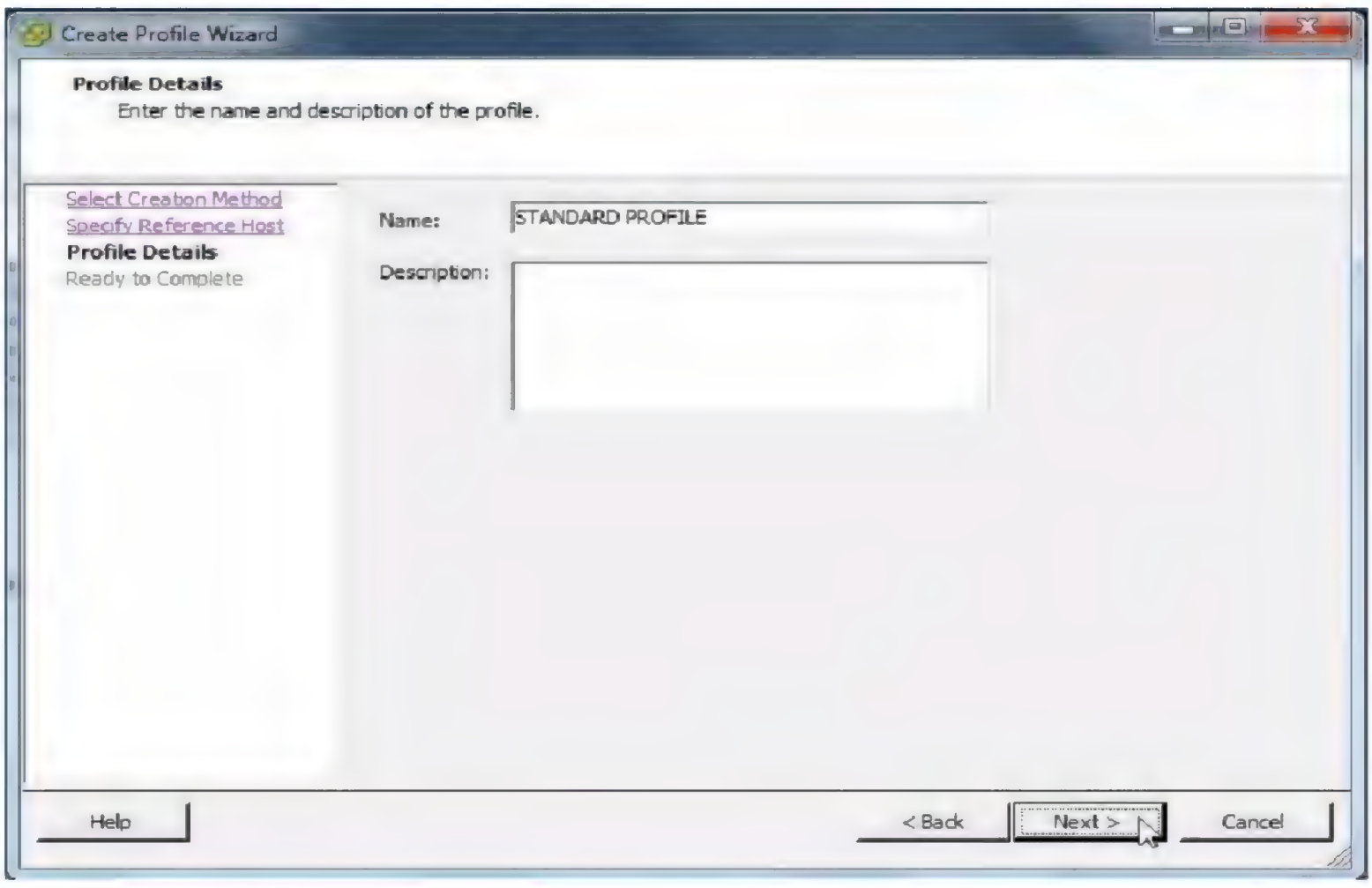
4. Click on Create Profile



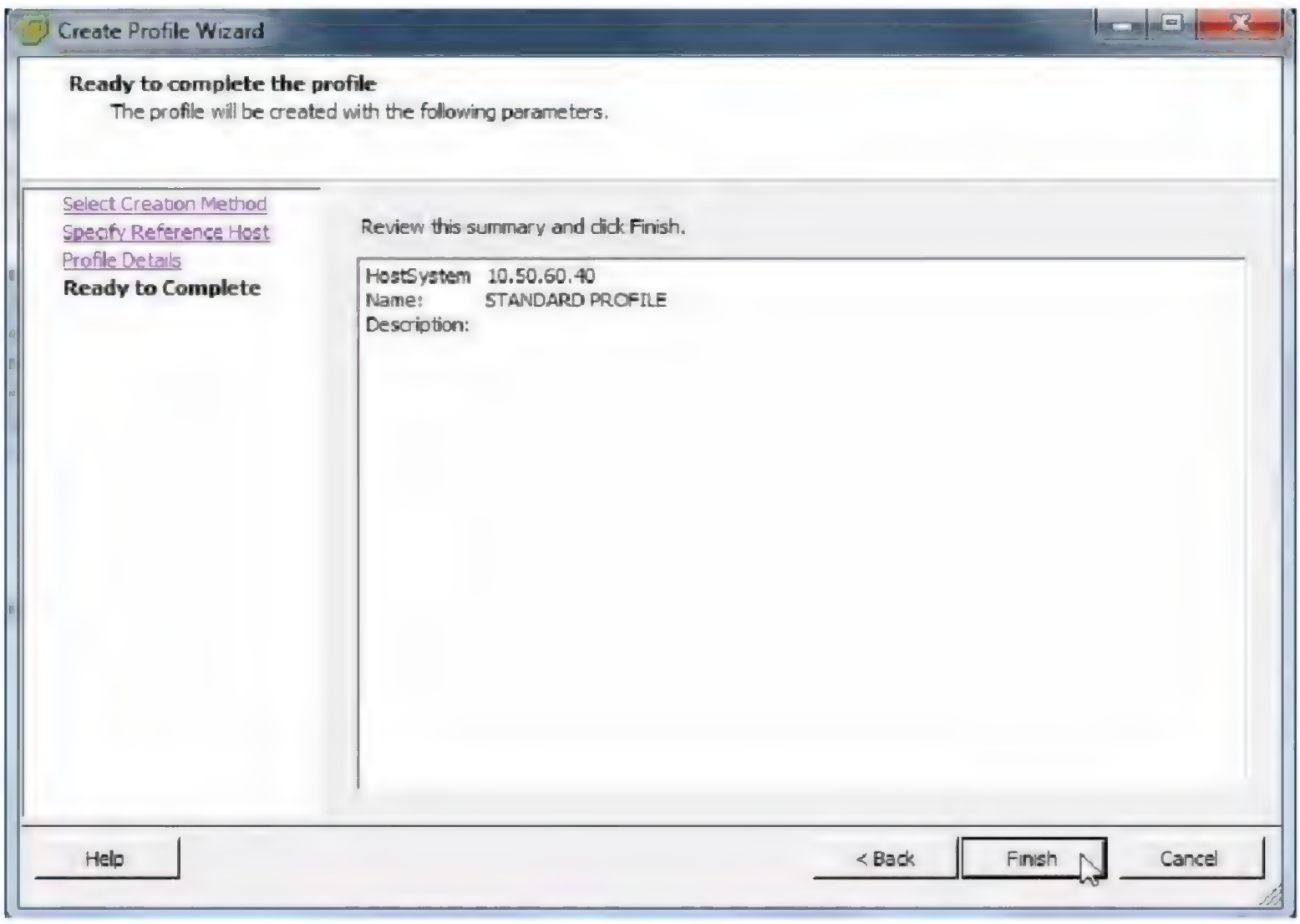
5. Next to continue



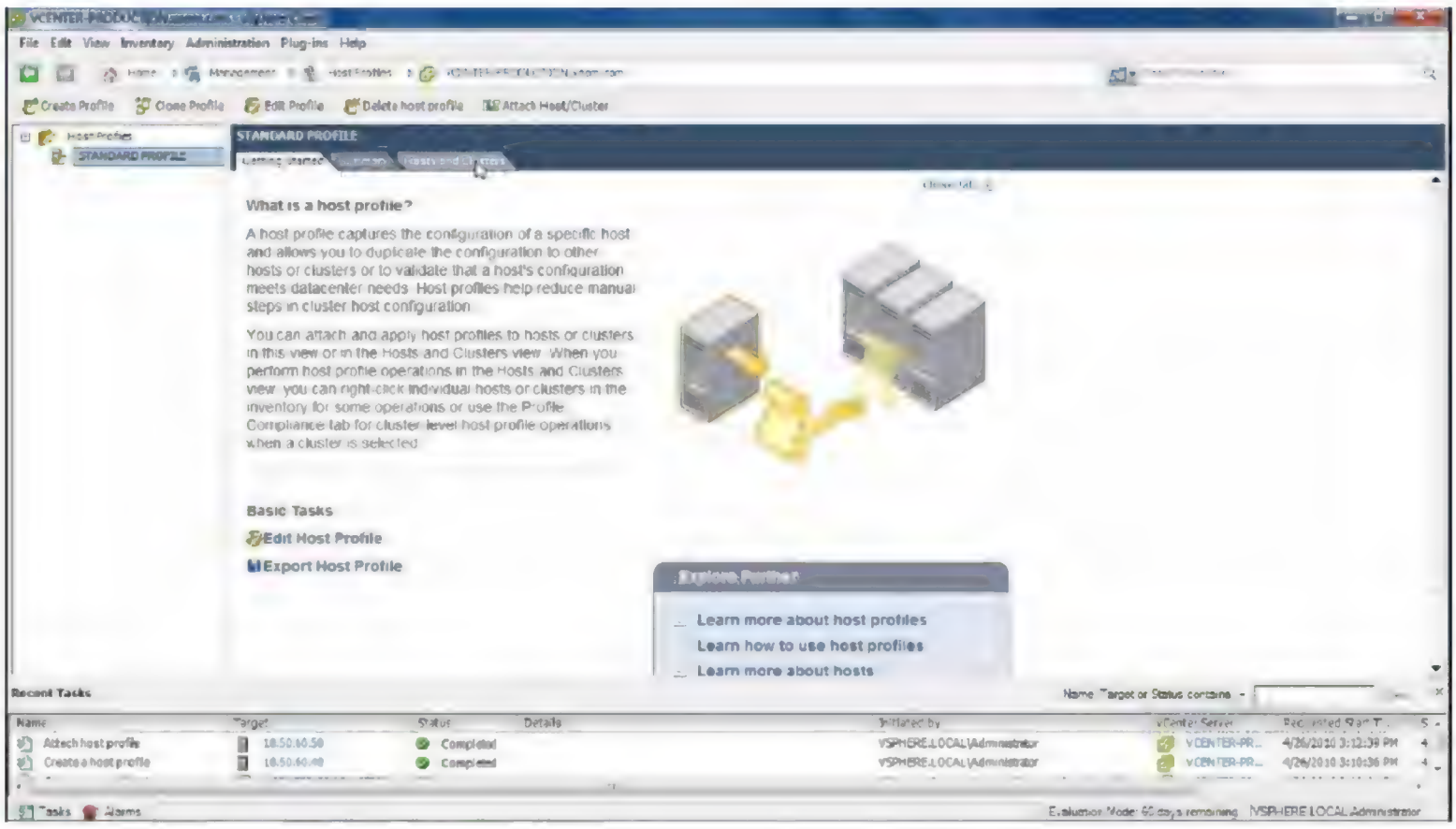
6. Select the Host, Next to continue



7. Name the profile, Next to continue

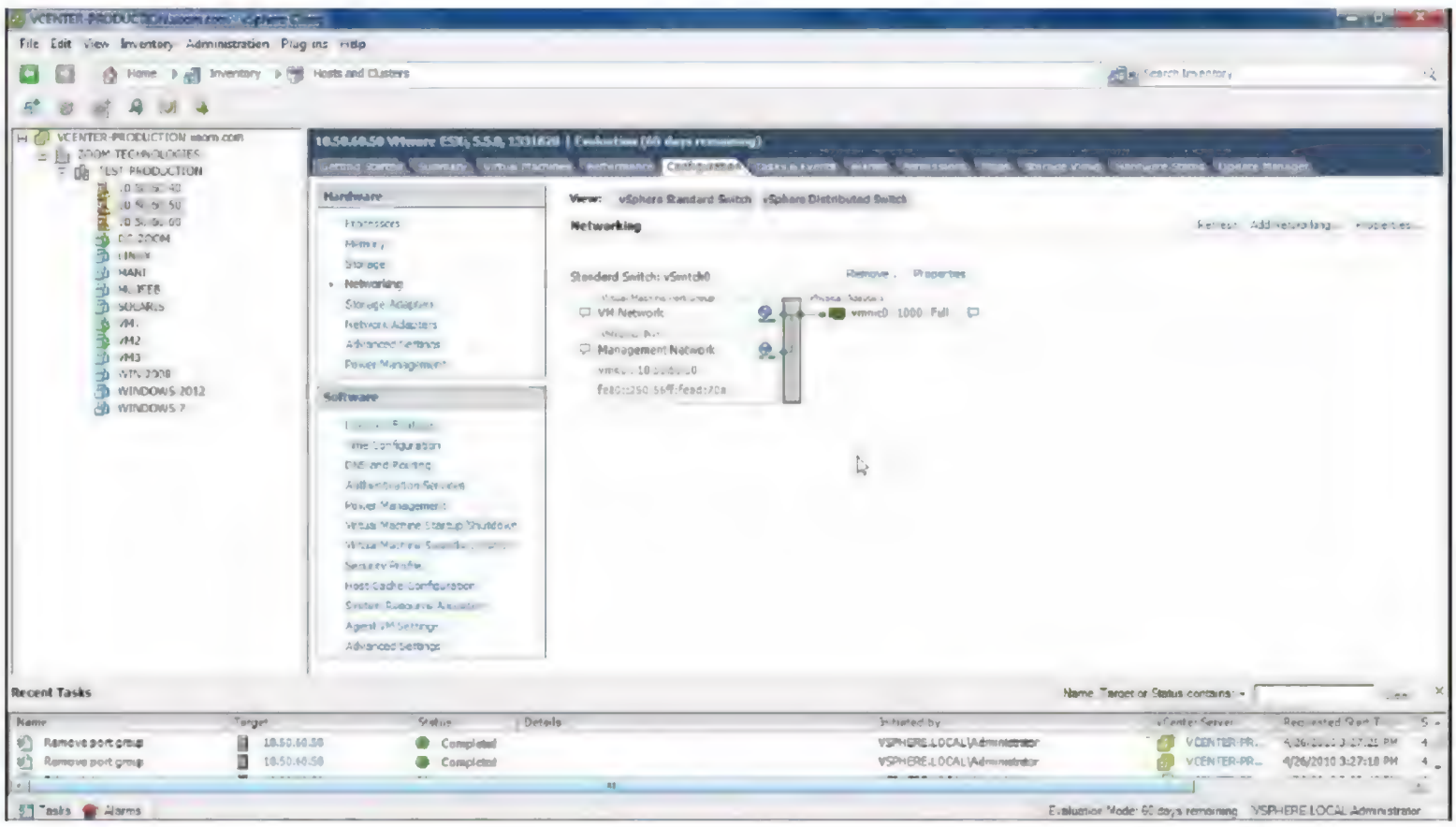


8. Finish to create a Host Profile

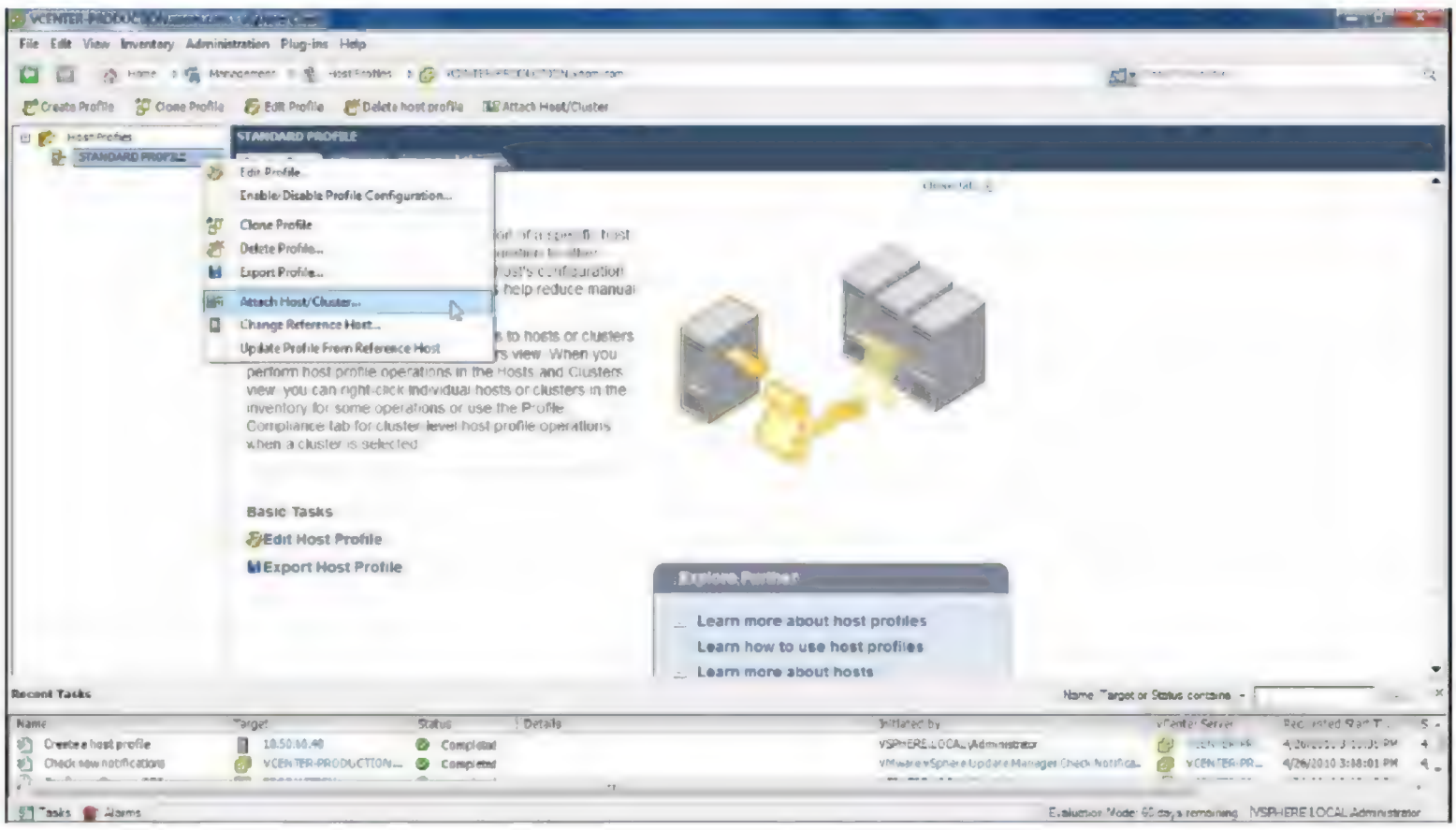


Observe Host profile of 10.50.60.40 is created

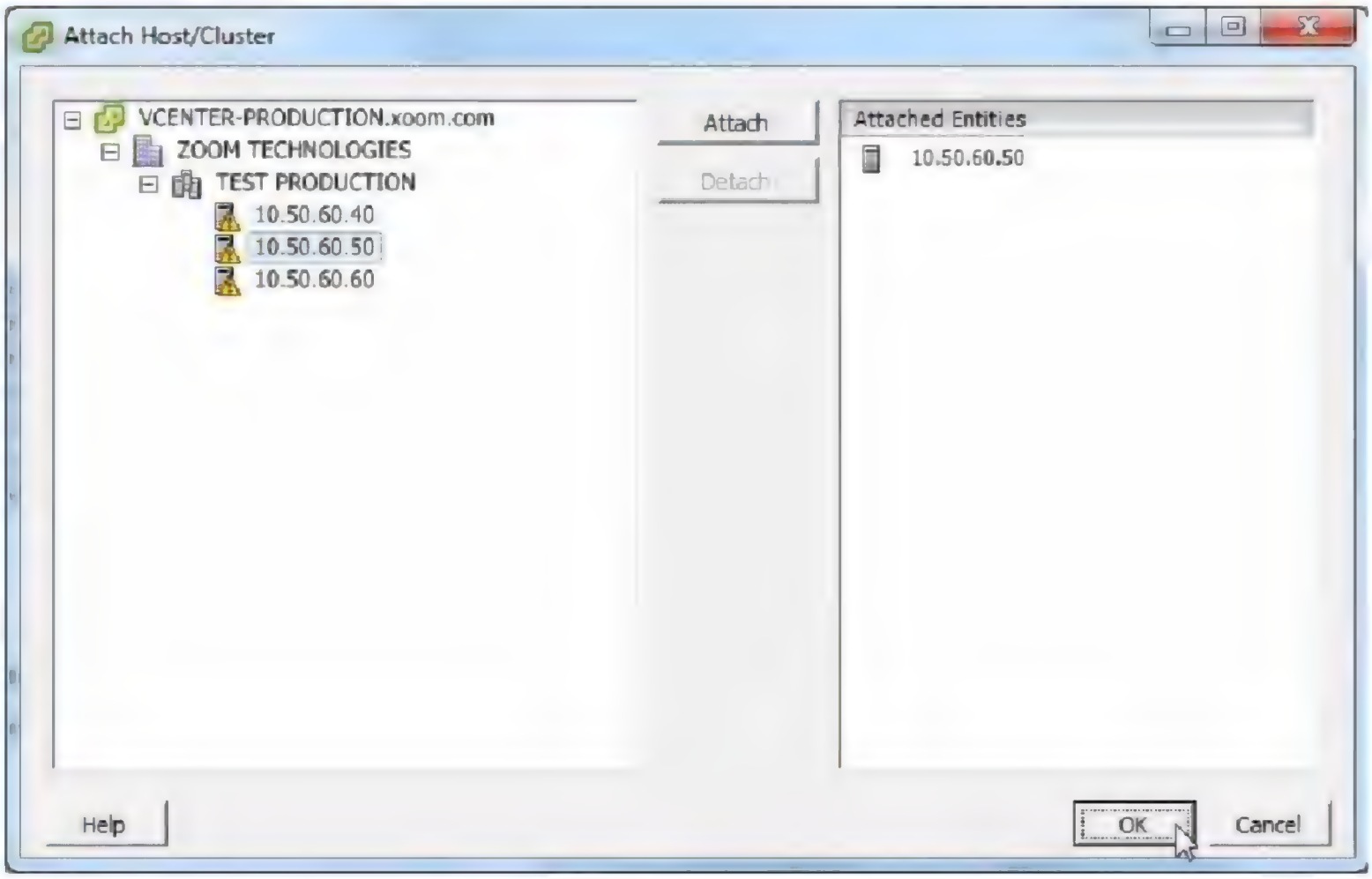
Applying a Host Profile



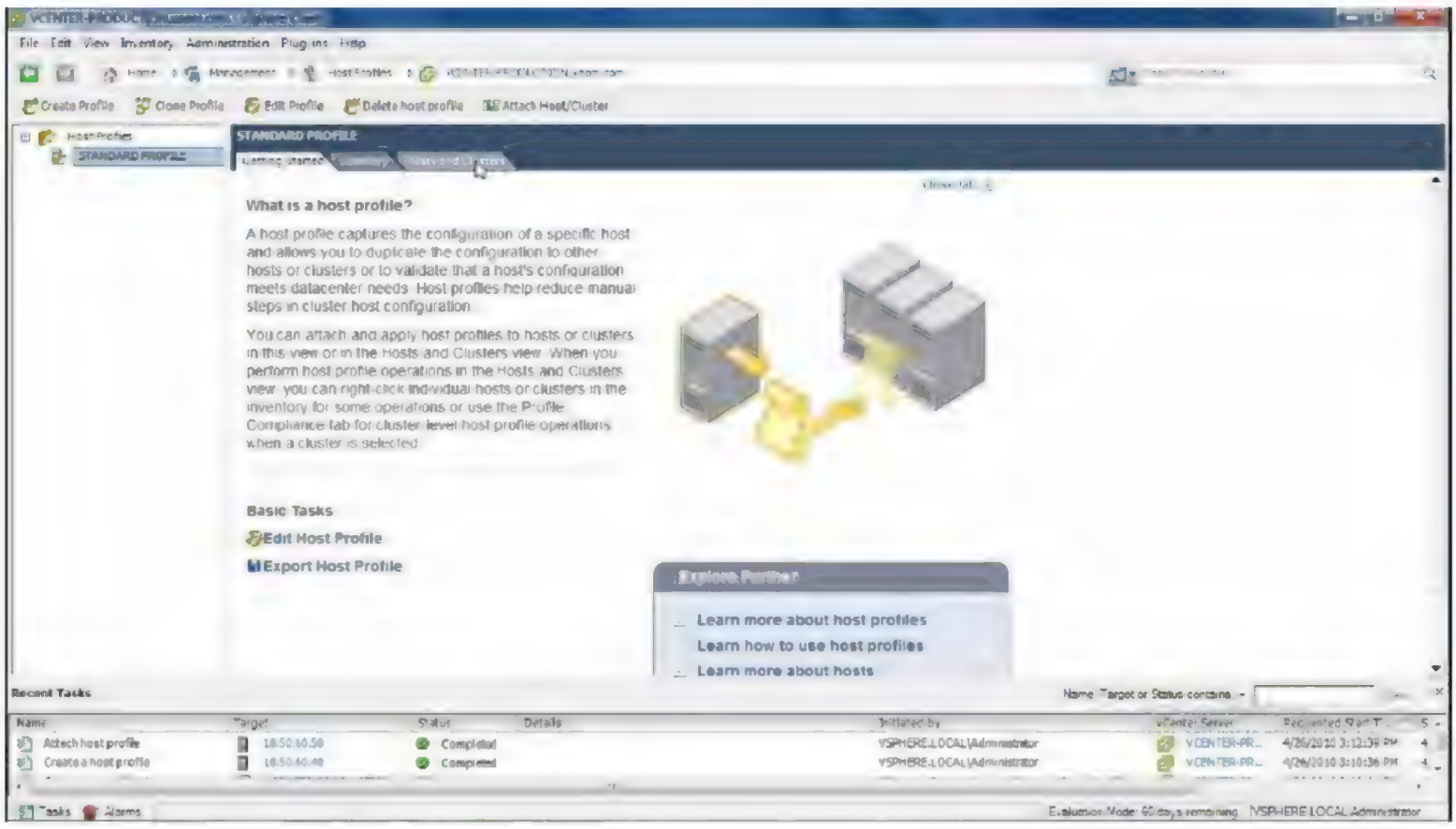
Observe the vSwitch of the Host 10.50.60.50 before applying Host Profile



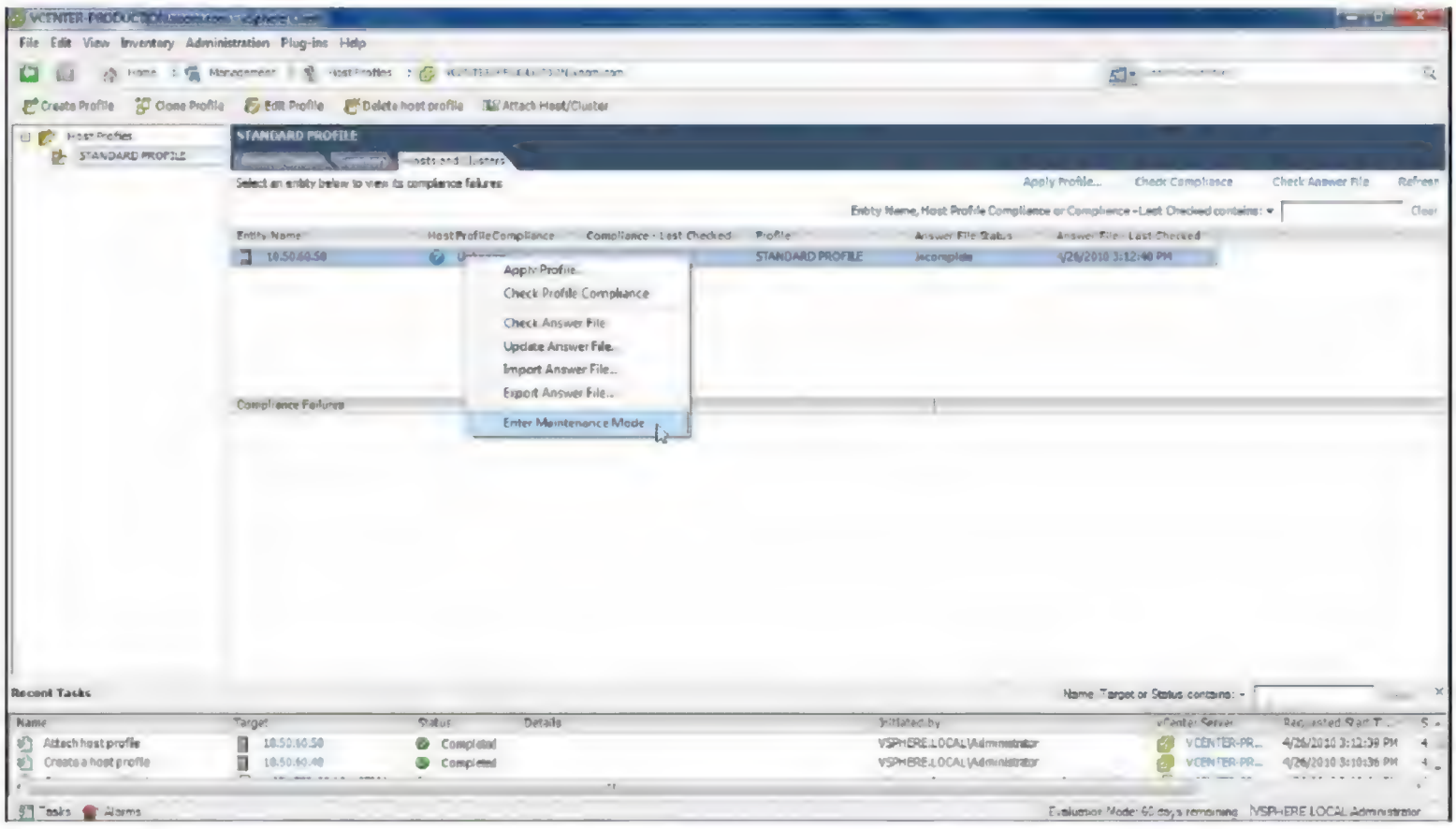
9. Right click on profile - Click on Attach Host/Cluster



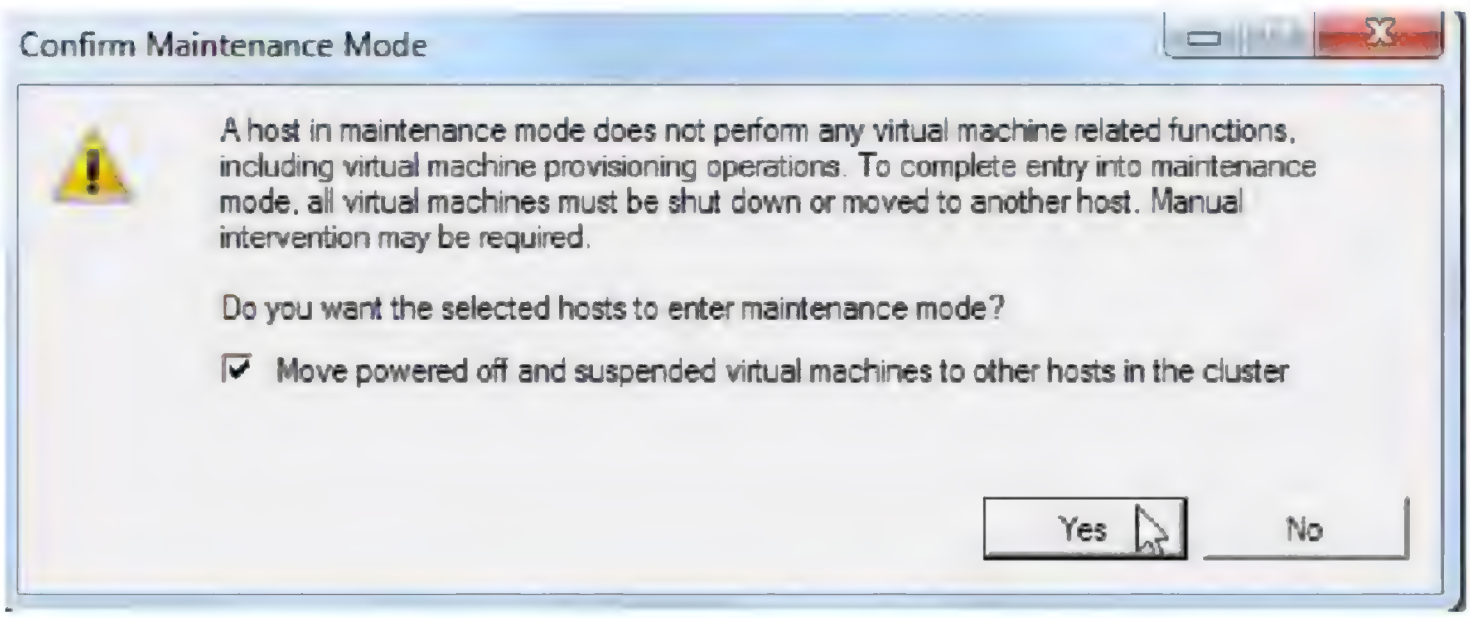
10. Select the Host click on Attach – OK



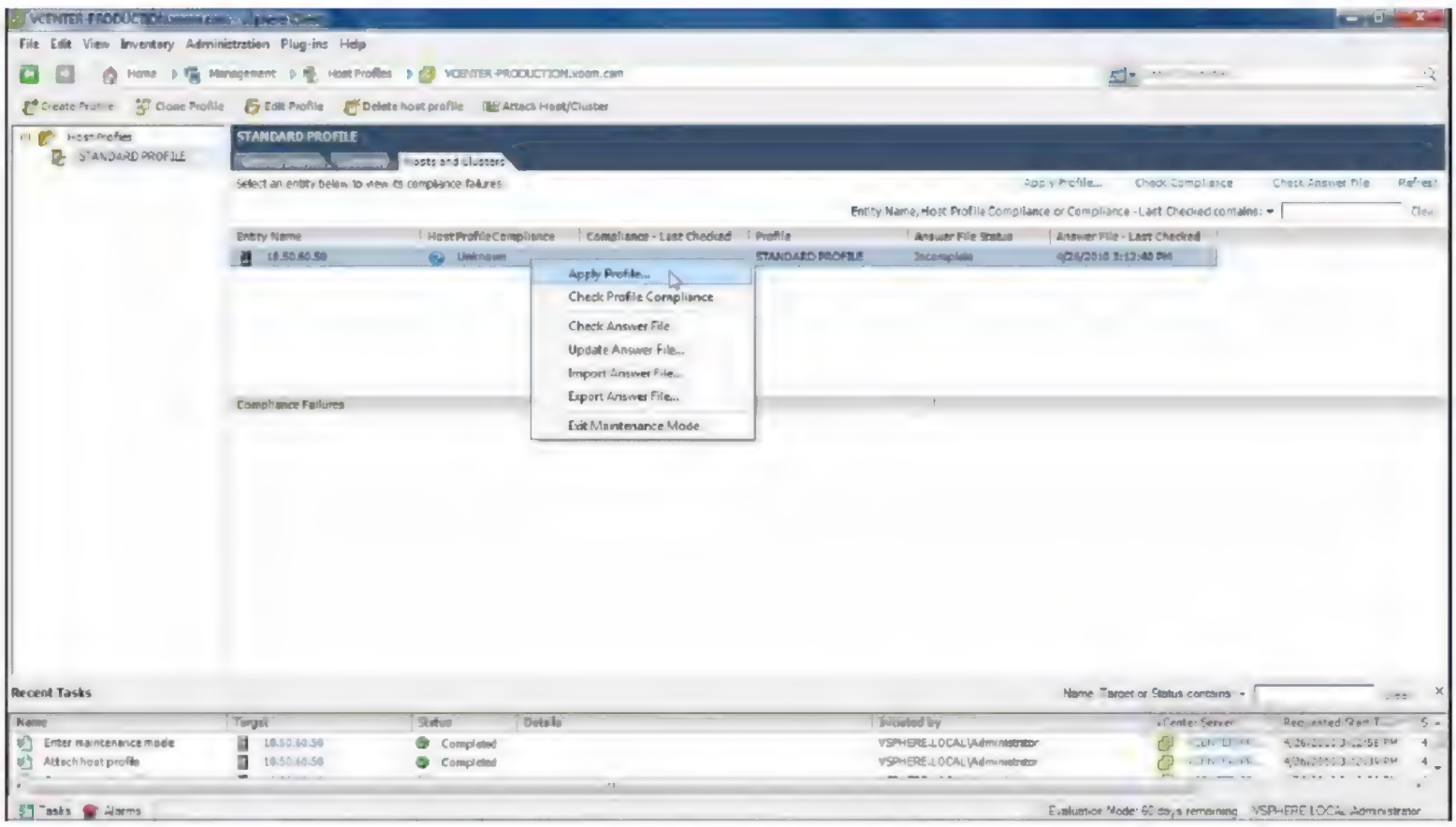
11. Select Host & Clusters Tab



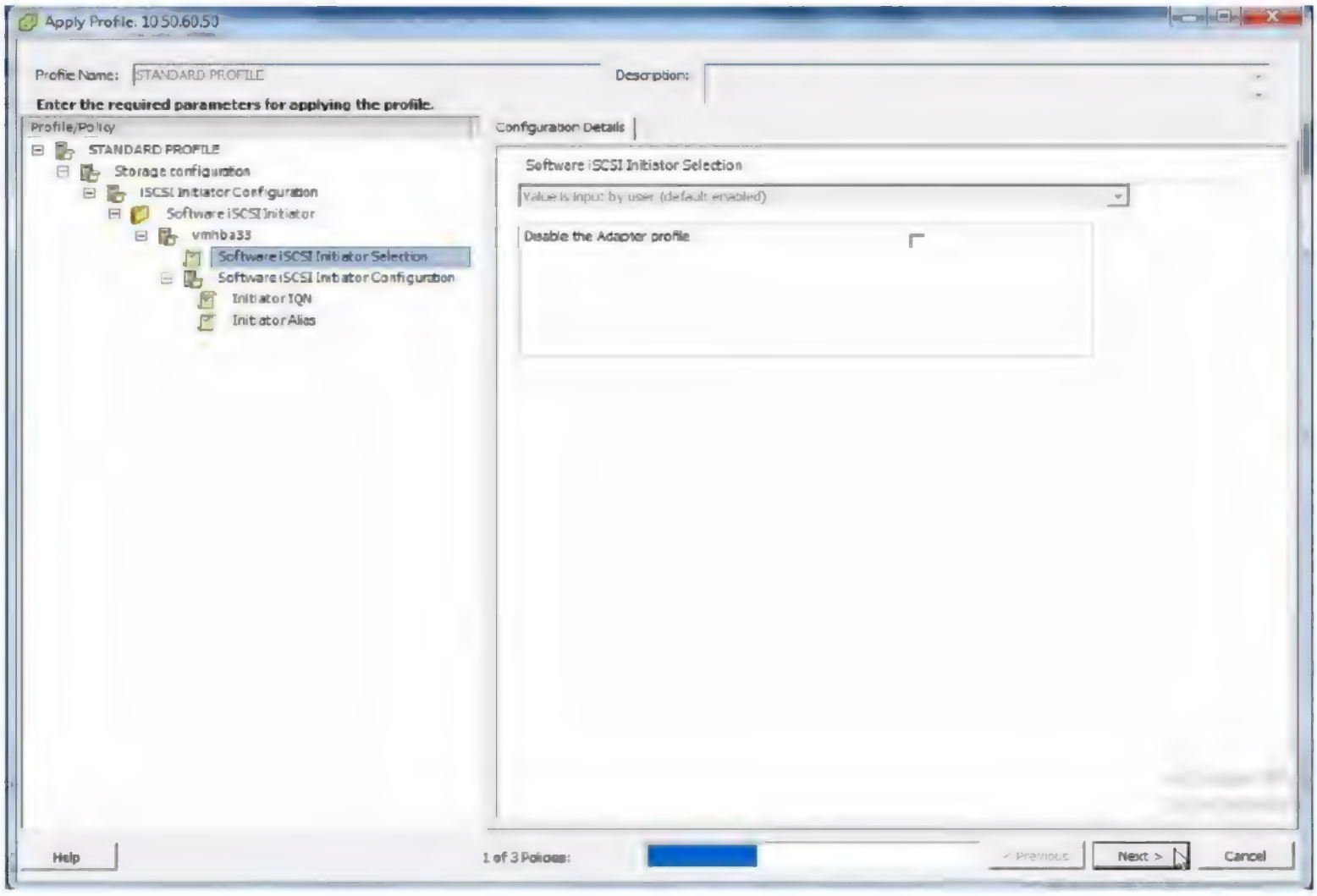
12. Right Click on Host - Enter Maintenance Mode



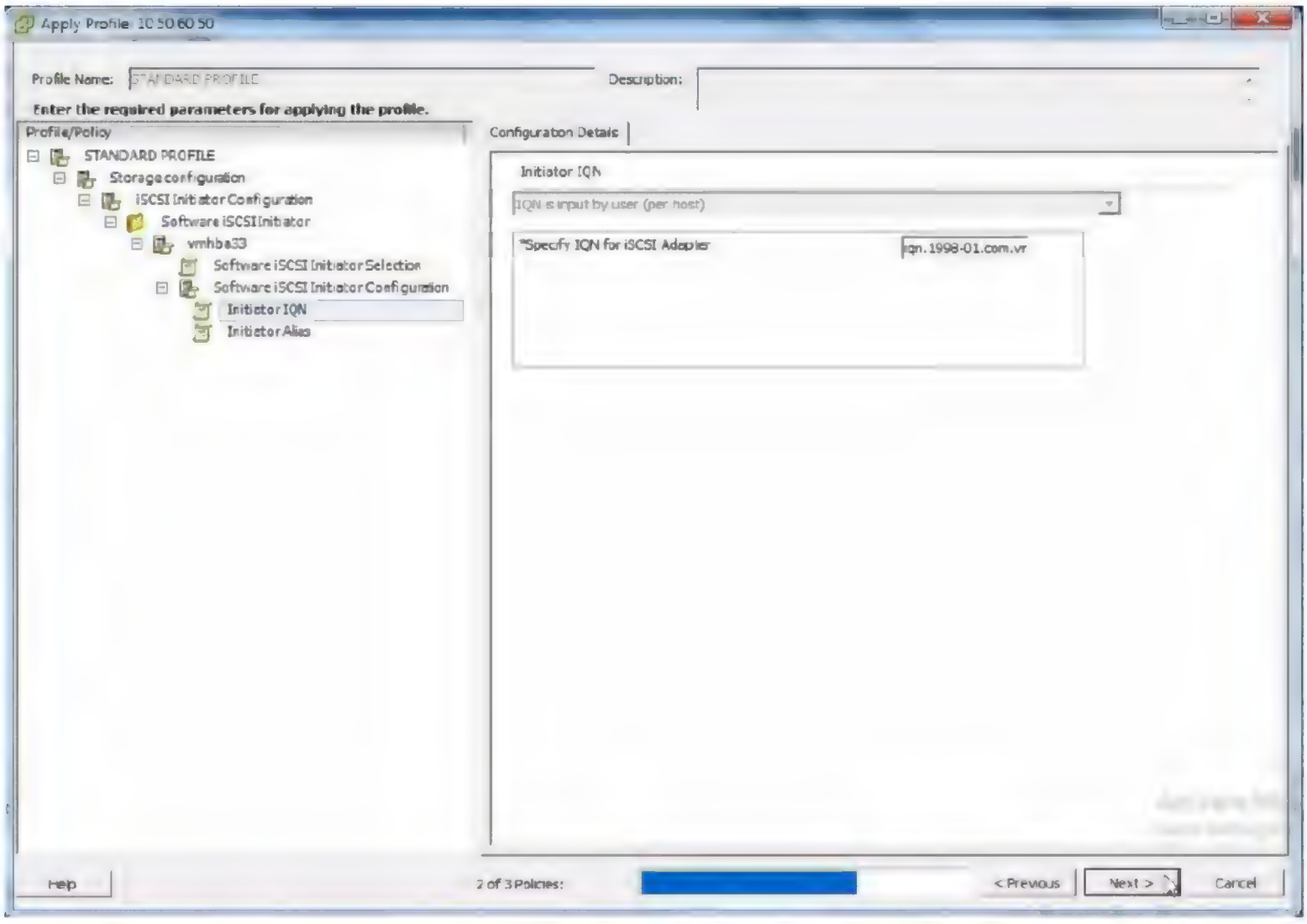
13. Yes



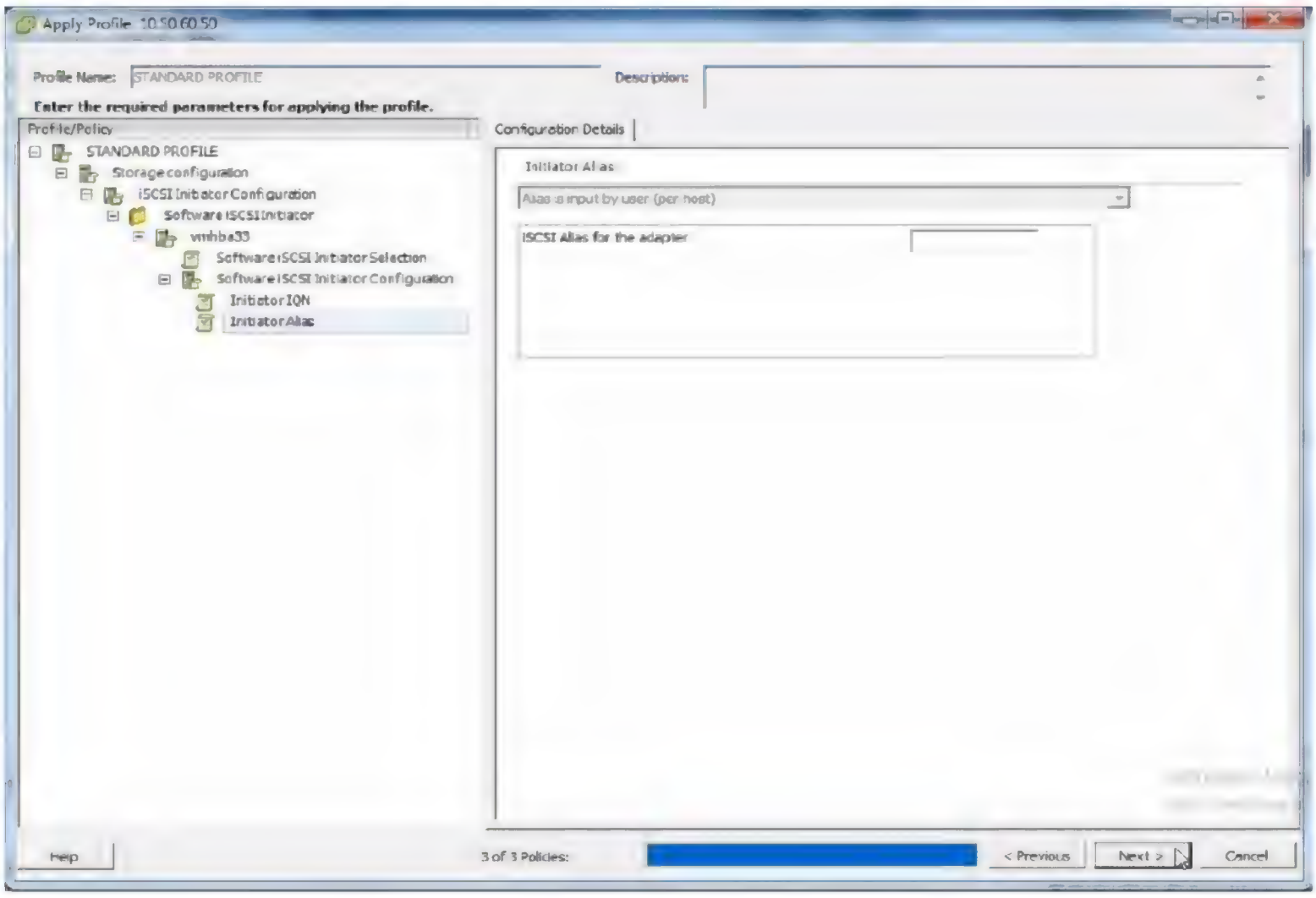
14. Right click on Host - Apply Profile on 10.50.60.50



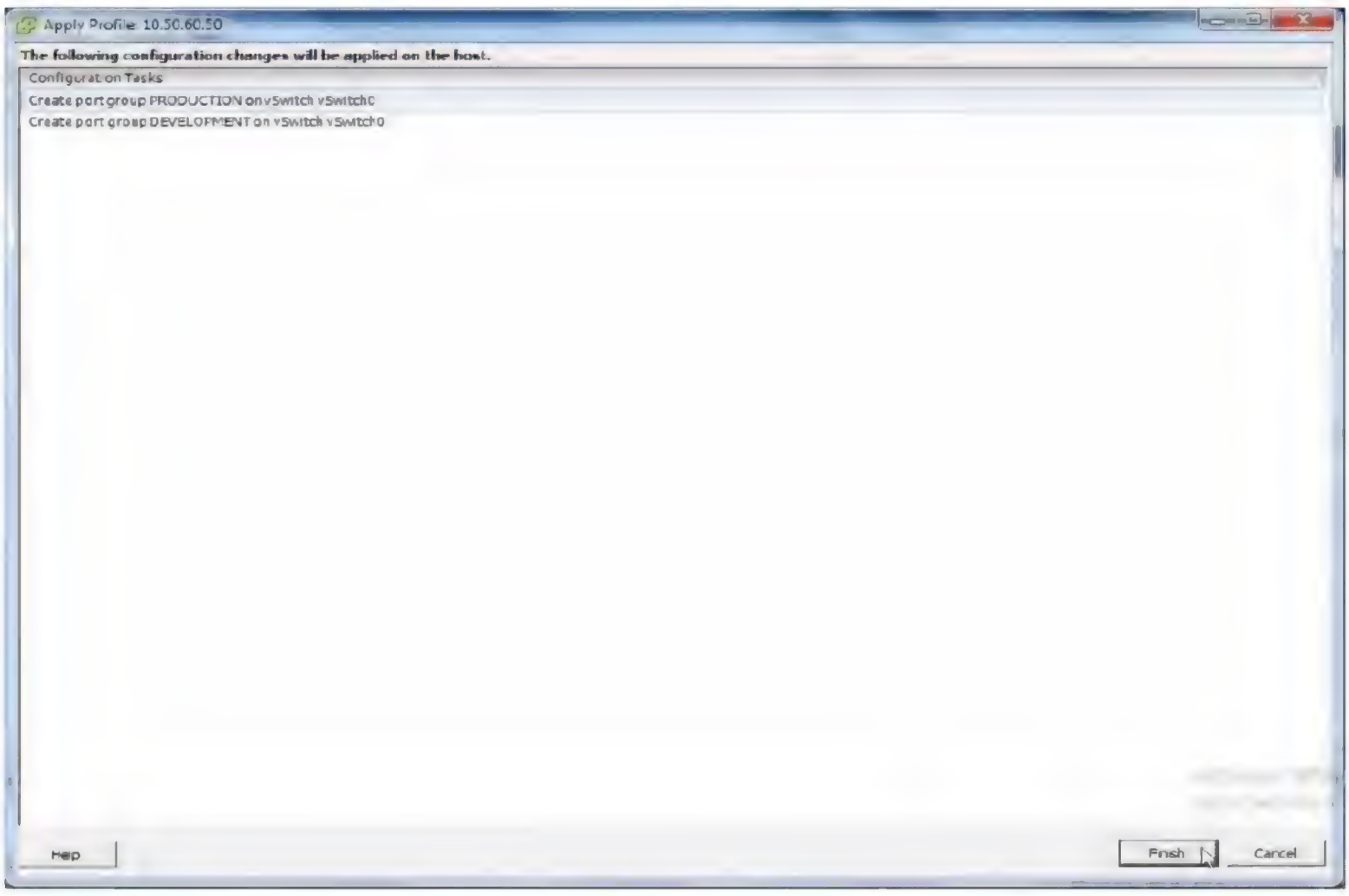
15. Next to continue



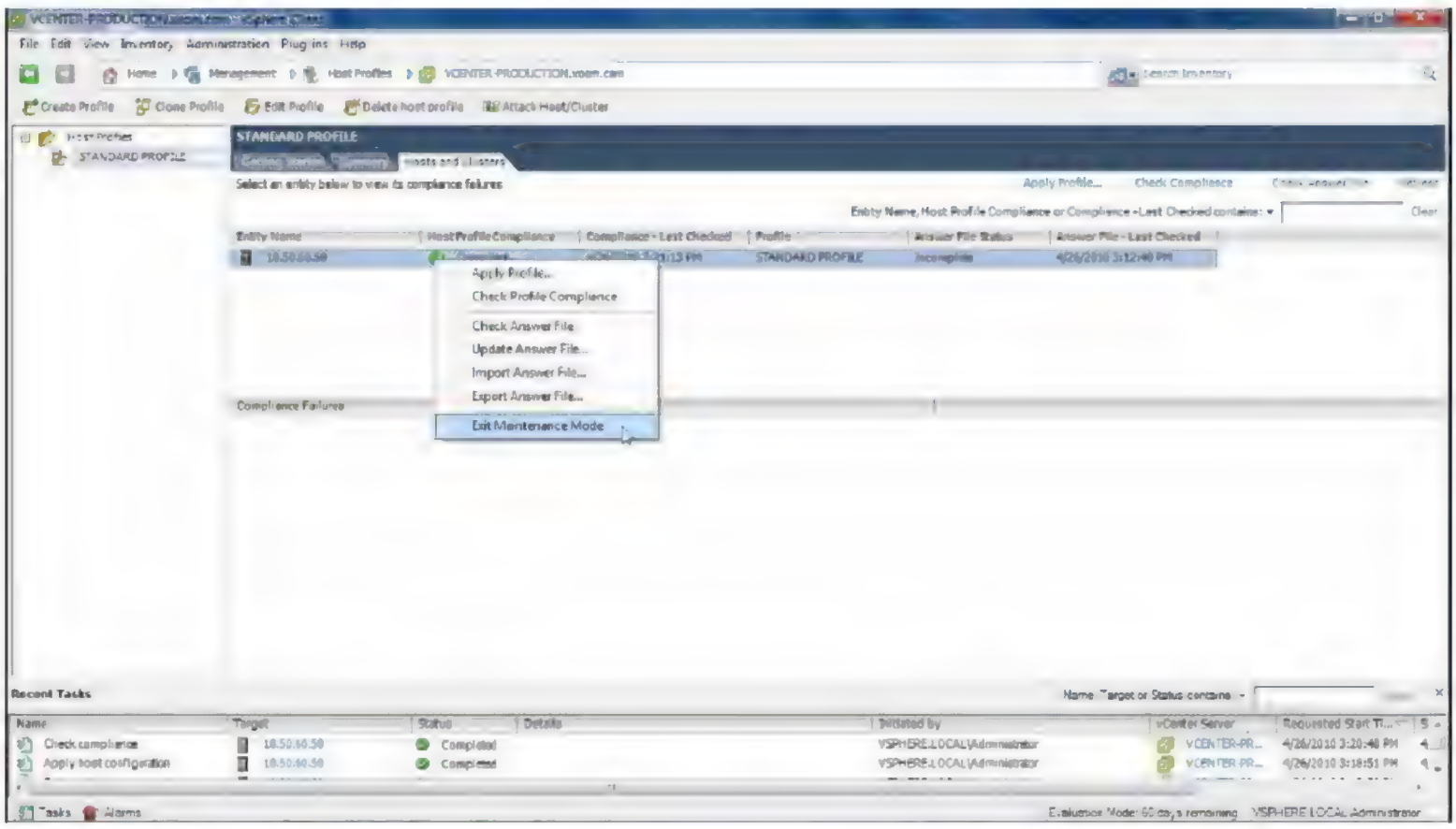
16. Next to continue



17. Next to continue

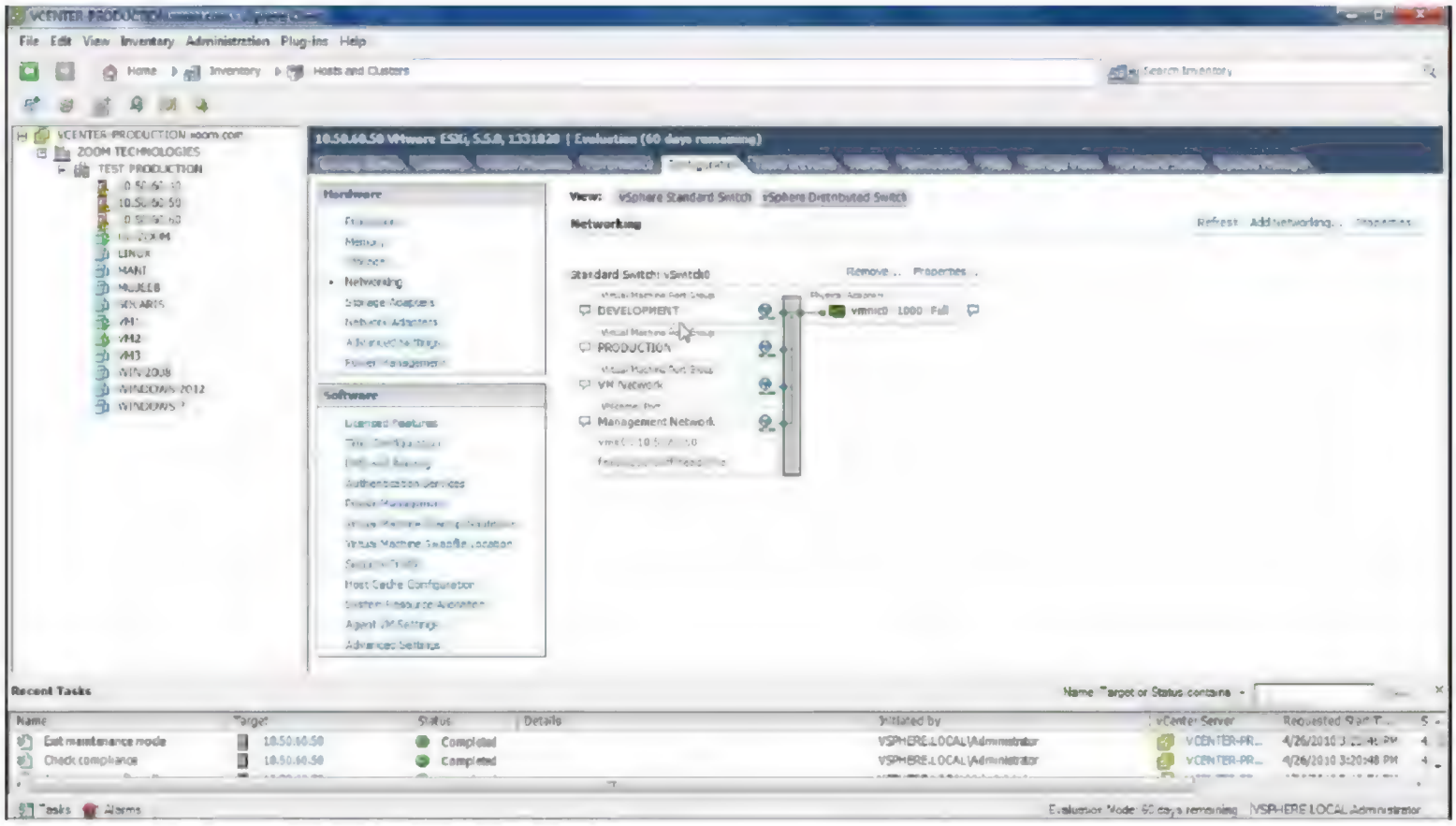


18. Finish to apply changes on the Host



19. Right Click Host - Exit Maintenance Mode

Verification:



Observe new port groups are created on vSwitch of the Host 10.50.60.50 after applying the Host Profile

LAB-27: STORAGE DISTRIBUTED RESOURCE SCHEDULER

Objective:

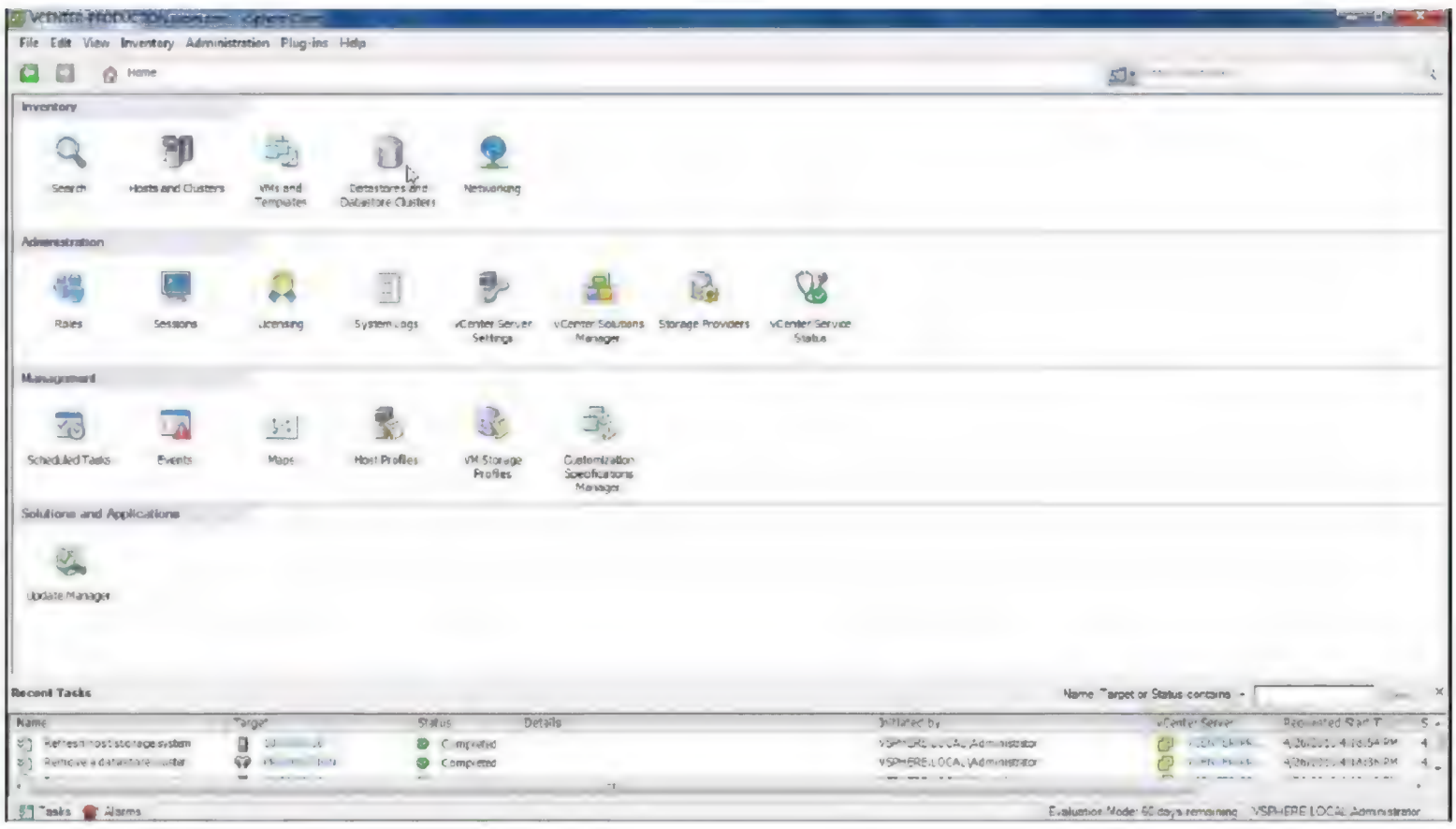
To configure Storage DRS

Prerequisites:

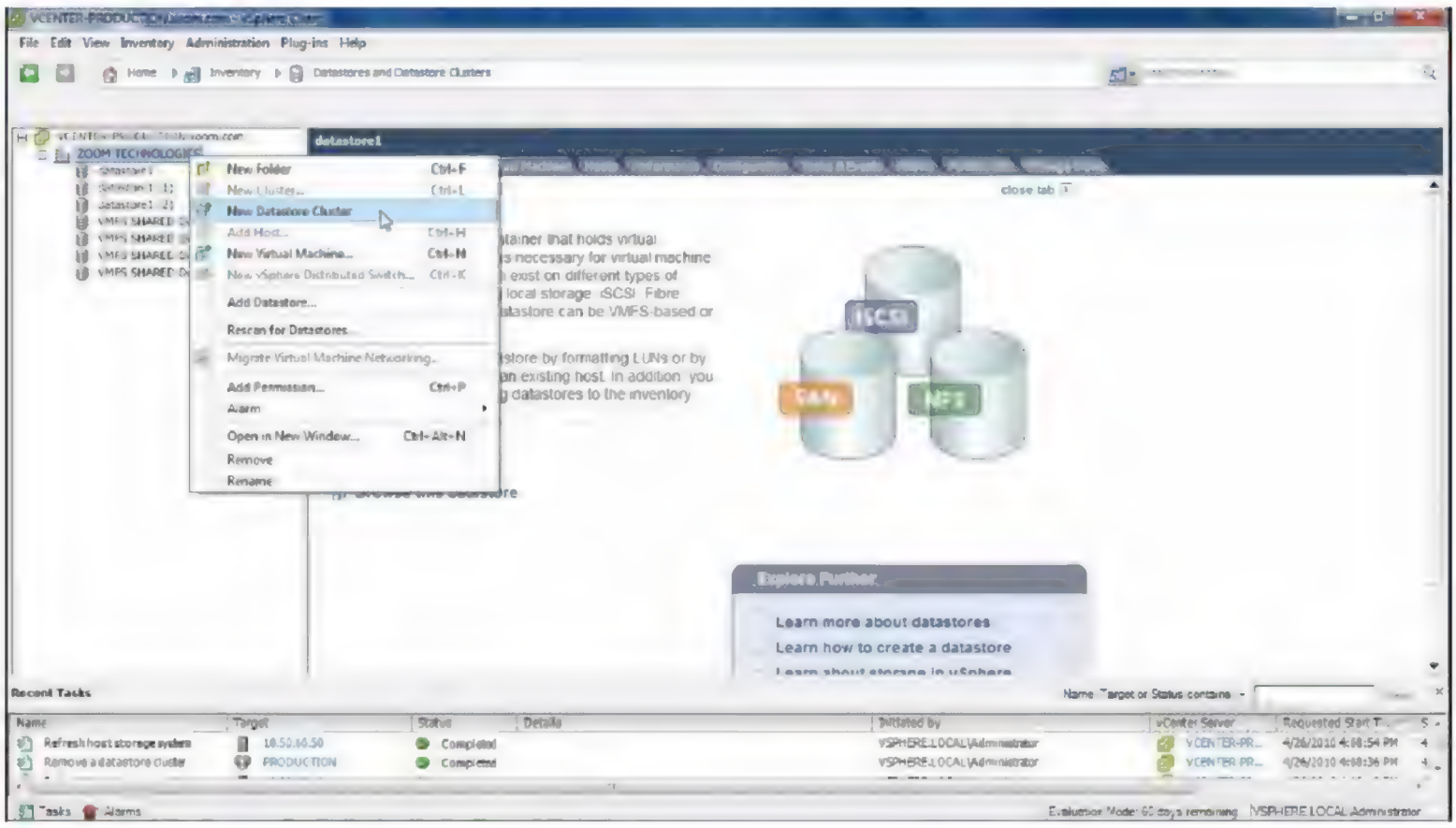
vCenter Server, Cluster

Steps:

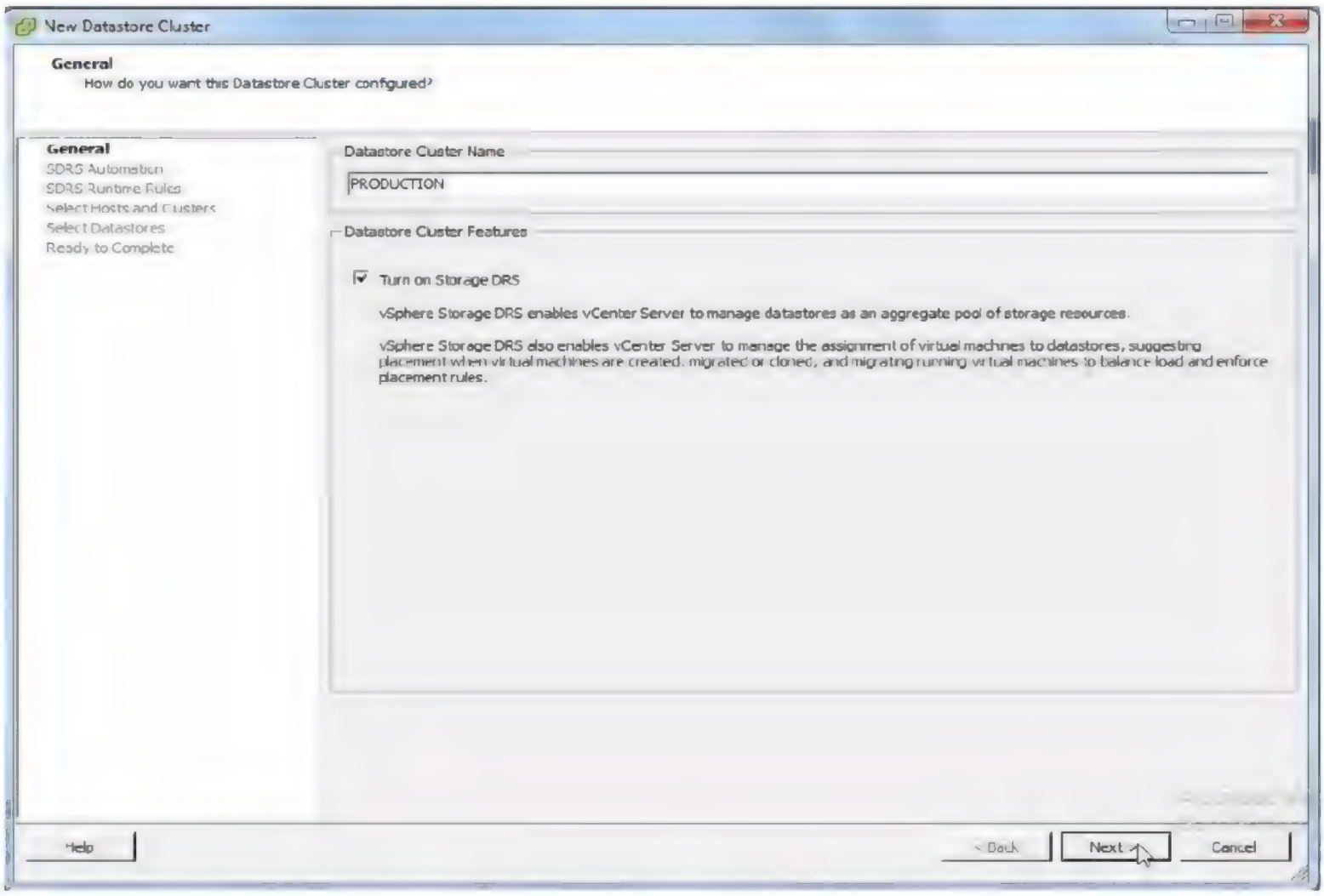
1. Login to vCenter Server go to Home



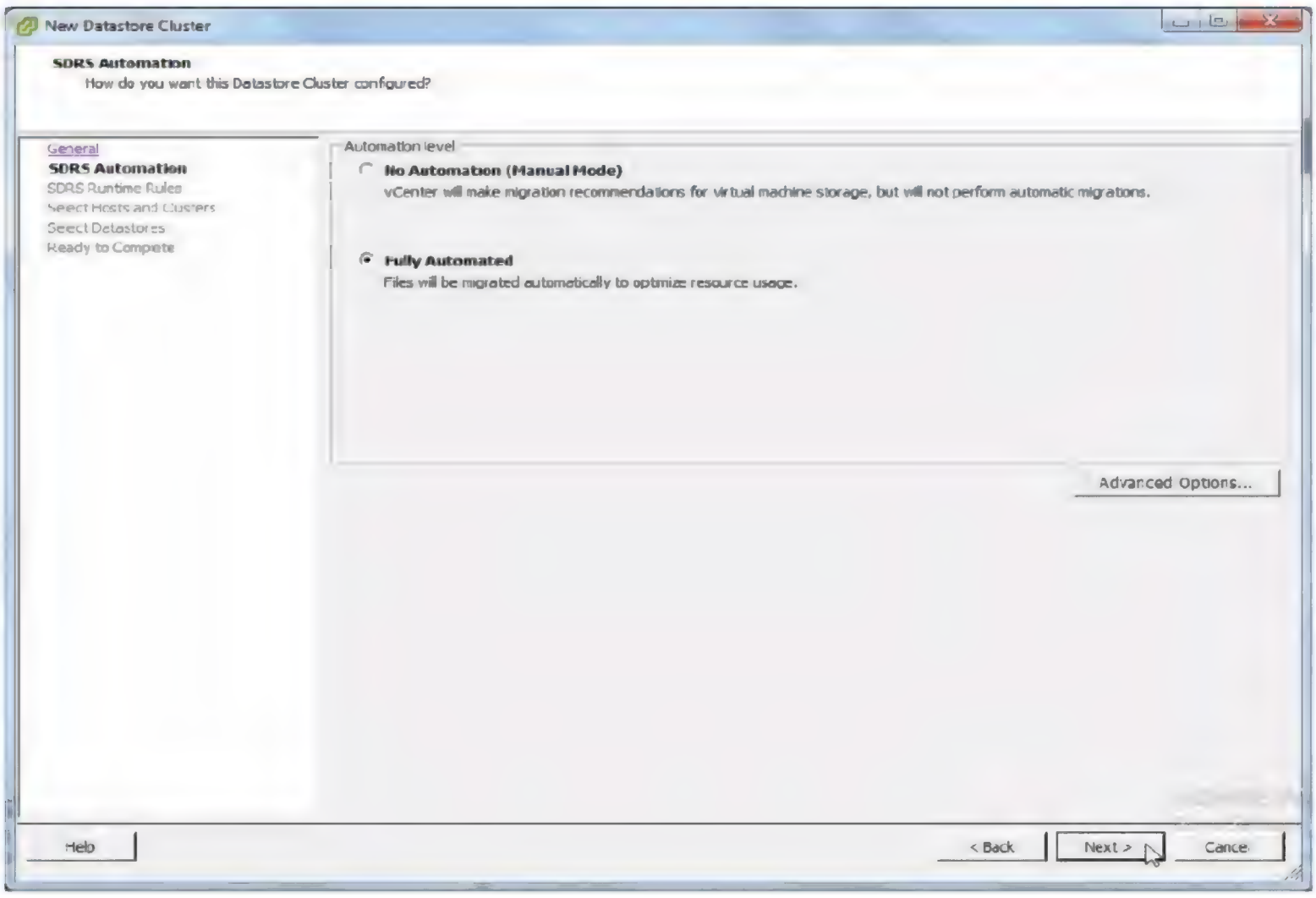
2. Under Inventory Section, Select Datastores and Datastore Clusters



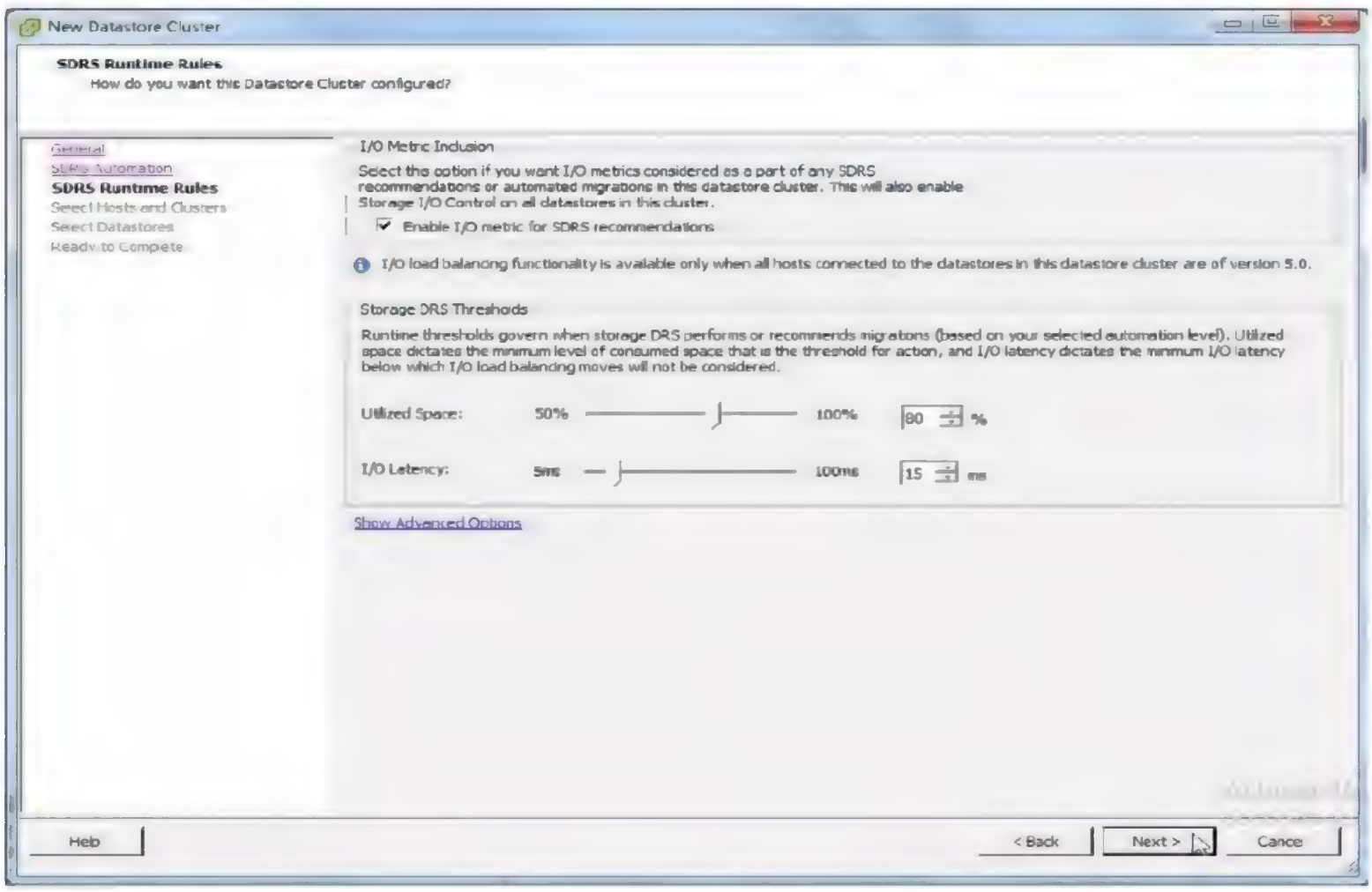
3. Right Click Datacenter - New Datastore Cluster



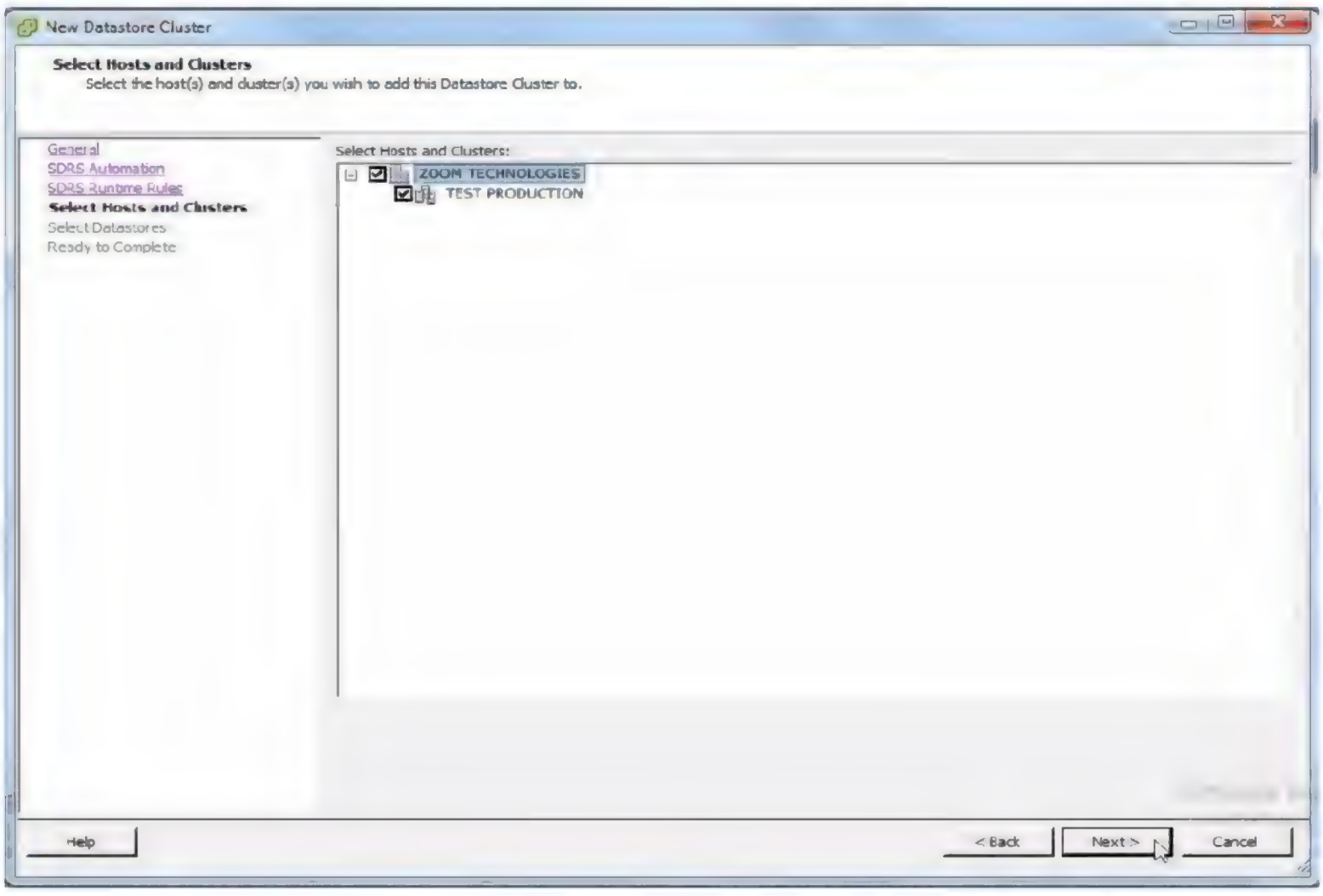
4. Enter a Name for Datastore Cluster, Next to continue



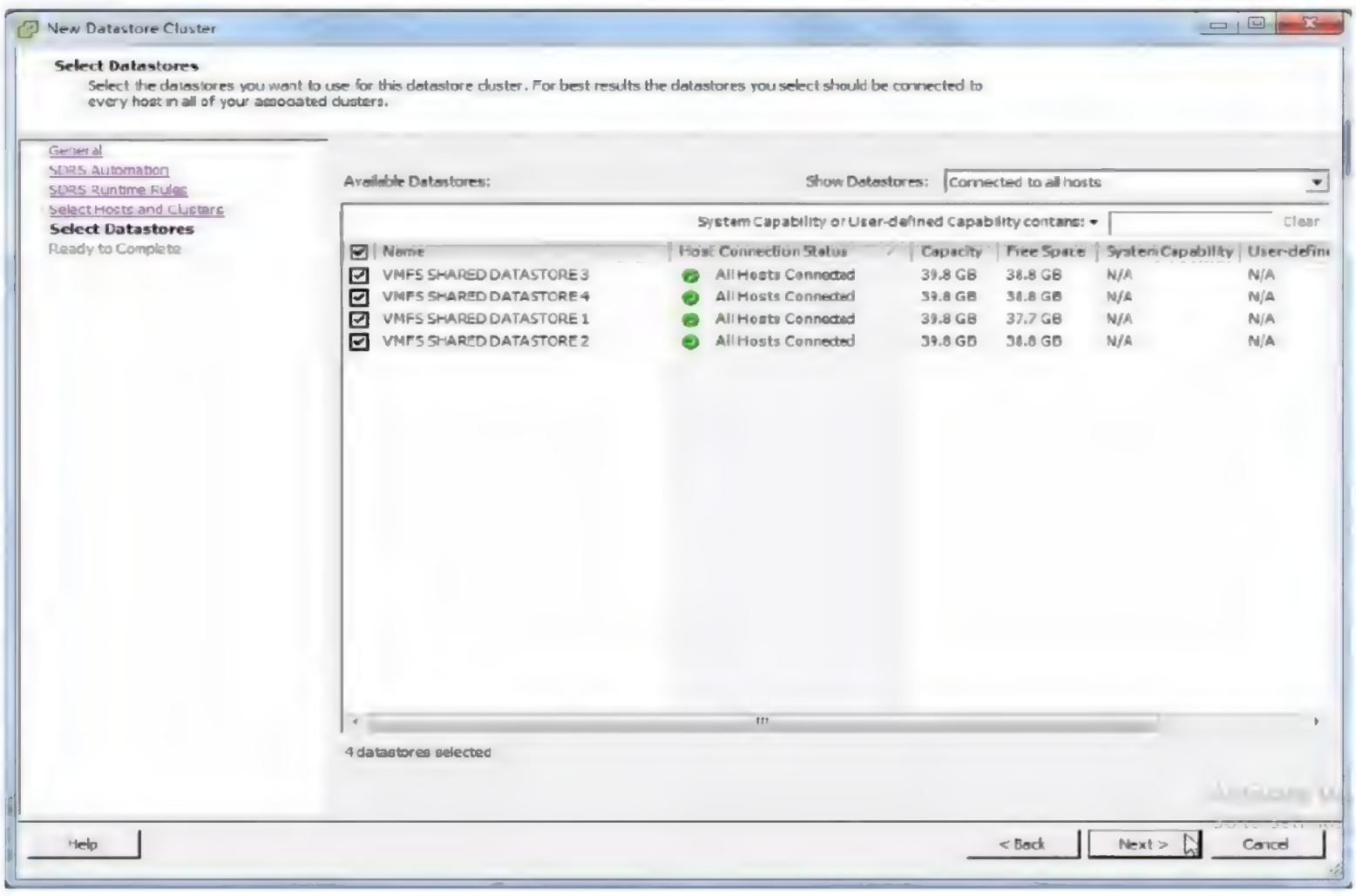
5. Select Fully Automated, Next to continue



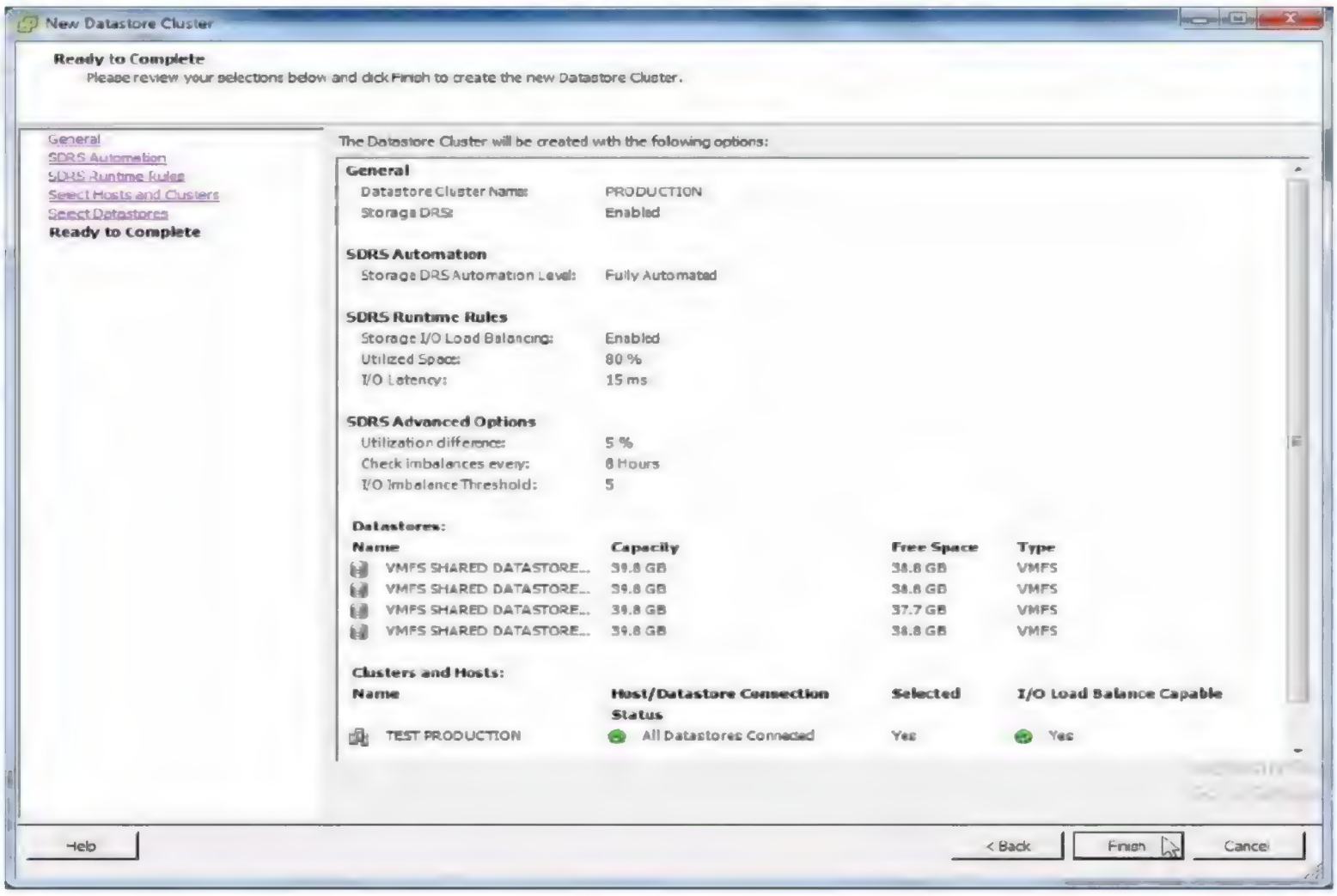
6. Next to continue with default options



7. Select Hosts and Clusters, Next to continue

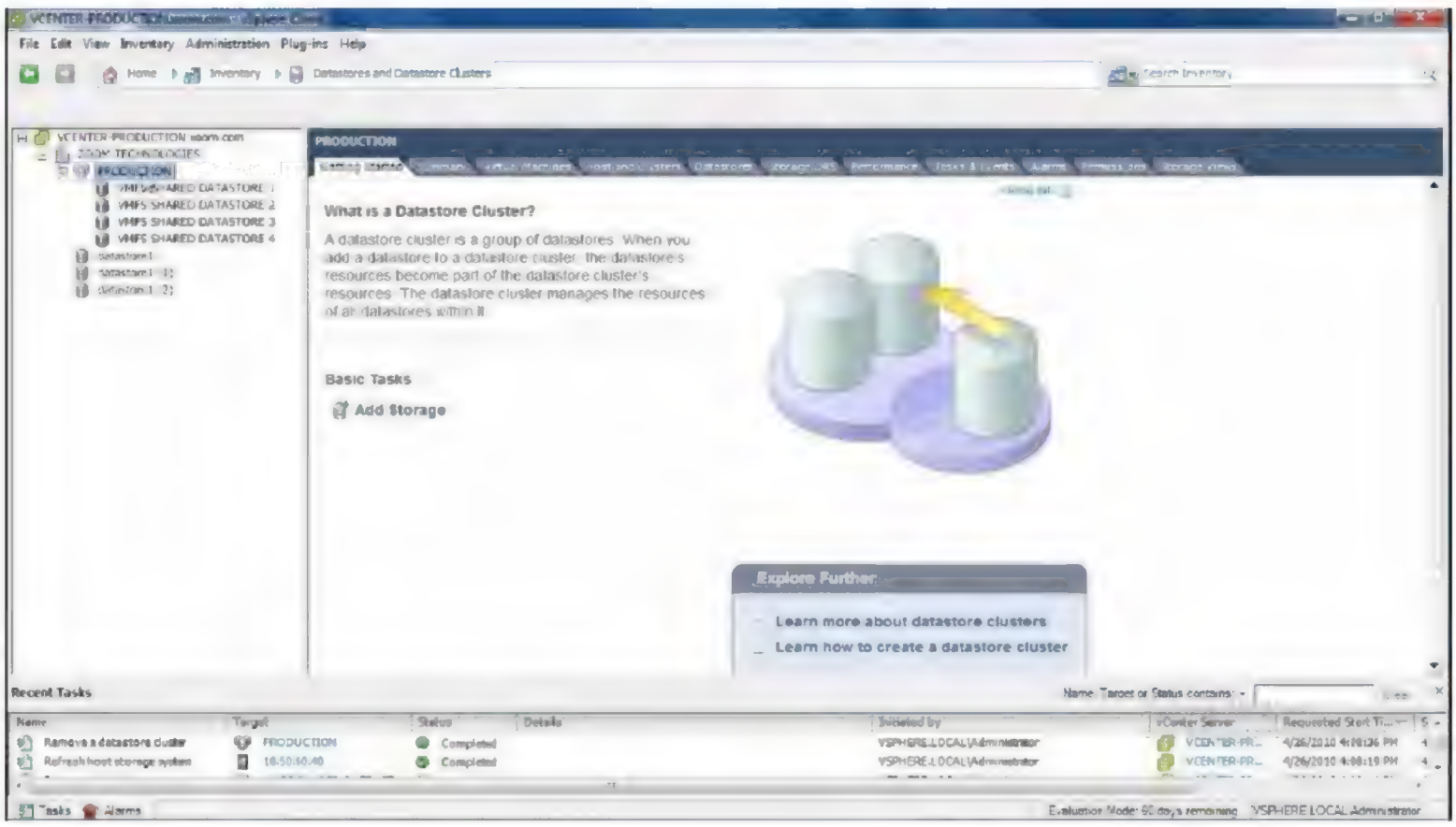


8. Select Datastores to be a part of cluster, Next to continue



9. Finish to create a Datastore Cluster

Verification:



Datastore cluster is created.

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- Ethical Hacking, Cyber Security and Firewall
- Open Source: A glimpse into advance Linux
- VMware vSphere and MS Private Cloude
- Cisco WAN Technology & Collaboration

Free MCSE & CCNA Exam Practice Questions

Complete Package for Only

Fees: ₹ 5,900/-

+ 14% Service Tax

Duration: 3 Months
4 Hrs Per Day

100% GUARANTEED JOB ASSISTANCE

EHCE | Ethical Hacking & Countermeasures Expert

Course is mapped to EHCE course from US-Council (www.us-council.com)

(Pre requisite is CCNA / MCSE / LINUX)

Duration: 2 Weeks | 4 Hrs Per Day (starts on 15th & 30th of every month)

Batches: Morning: 7.30 or Evening: 6.00

Fees: ₹ 9,500/-
+ 14% Service Tax

CCNP R&S

CISCO CERTIFIED NETWORK PROFESSIONAL

Duration: 1 Month | 4 Hrs Per Day (starts on 15th of every month)

Batches: Morning: 7.30 • Afternoon: 2.00 • Evening: 6.00

- Labs on latest routers with IOS version 15.X

Monitoring, Diagnostics & Troubleshooting Tools

• PRTG • Wireshark • SolarWinds, etc.

Exam Practice Challenge Labs

Fees: ~~₹ 10,000/-~~

Introductory Special Offer

Fees: ₹ 5,500/-

+ 14% Service Tax

CCIE R&S

CISCO CERTIFIED INTERNETWORK EXPERT

Duration: 1 Month | 4 Hrs Per Day (starts on 15th of every month)

Batches: Morning: 7.30 • Evening: 6.00

- Individual Rack For Every Student
- Real time scenarios by 20+ years experienced CCIE certified industry expert who has worked on critical projects worldwide.

Written + Lab Exam Focus

FREE Full Scale 8 Hours Exam Lab Included

Unlimited Lab Access For 1 Year

Fees: ~~₹ 25,000/-~~

Introductory Special Offer

Fees: ₹ 9,999/-

+ 14% Service Tax

MICROSOFT EXCHANGE SERVER-2013

Duration: 2 Weeks | 4 Hrs Per Day (starts on 15th & 30th of every month)
Batches: (Contact the Counselors for the next available batch)

Fees: ₹ 2,500/-
+ 14% Service Tax

MICROSOFT PRIVATE CLOUD

Microsoft Certified Solutions Expert [MCSE] Private Cloud
Duration: 2 Weeks | 4 Hrs Per Day
Batches: (Contact the Counselors for the next available batch)

Fees: 2,500/-
+ 14% Service Tax

ADVANCED LINUX

Duration: 2 Weeks | 4 Hrs Per Day (starts on 15th & 30th of every month)
Batches: (Contact the Counselors for the next available batch)

Fees: ₹ 2,500/-
+ 14% Service Tax

CCNA SECURITY (Pre requisite is CCNA R&S)

CISCO CERTIFIED NETWORK ASSOCIATE - SECURITY
Duration: 2 Weeks | 4 Hrs Per Day (starts on 15th of every month)
Batches: Morning: 7.30 or Evening: 6.00

Fees: ₹ 7,500/-
+ 14% Service Tax

CCNP SECURITY (Pre requisite is CCNA Security at ZOOM)

CISCO CERTIFIED NETWORK PROFESSIONAL - SECURITY
Duration: 2 Weeks | 4 Hrs Per Day (starts on 30th of every month)
Batches: Morning: 7.30 or Evening: 6.00

Fees: ₹ 9,500/-
+ 14% Service Tax

CCIE SECURITY (Pre requisite is CCNA & CCNP Security at ZOOM)

CISCO CERTIFIED INTERNETWORK - SECURITY
Duration: 1 Month | 4 Hrs Per Day
Batches: (Contact the Counselors for the next available batch)

Fees: ₹ 15,500/-
+ 14% Service Tax

VMware vSphere (Pre requisite is MCSE)

Duration: 1 Month | 4 Hrs Per Day (starts on 15th of every month)
Batches: Morning: 7.30 and Evening: 7.30

Fees: ₹ 4,950/-
+ 14% Service Tax

VMware vCloud (Pre requisite is VMware vSphere)

Duration: 1 Week | 4 Hrs Per Day (starts on 15th of every month)
Batches: Morning: 9.30 to 11.30

Fees: ₹ 2,500/-
+ 14% Service Tax

CHECKPOINT FIREWALL

Duration: 2 Weeks | 4 Hrs Per Day
Batches: (Contact the Counselors for the next available batch)

Fees: ₹ 5,500/-
+ 14% Service Tax

We also offer the following courses (Contact the Counselors for the next available batch)

- **CCNA Voice** @ ₹7,500/-
- **CCNP Voice** @ ₹9,500/-
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- **CCNP Data Center** @ ₹9,500/-
- **CCIE Data Center** @ ₹15,500/-
- **IPv6 Migration** @ ₹5,500/-

FACULTY

- All Senior Engineers of Zoom working on Live projects
- Training Engineers of British Army, CISCO, CMC, GE, BSNL, Tata Teleservices and Several Corporates etc for 18 Years.

FREE Training

Zoom Technologies offers a number of free resources for the professional development of network engineers.

Register on our website to get access to the video recordings of live sessions on:

- **MCSE – Windows Server 2012**
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- **Cisco – CCNP** } **All Tracks (R & S, Security and Voice)**
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- **Exchange Server 2013**
- **Linux**
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- **Ethical Hacking and Countermeasure Expert (www.us-council.com)**

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Online Training

Online Training at Zoom is a cost effective method of learning new networking skills from the convenience of your home or workplace.

Taking an online training course has many advantages for everyone (Freshers / Working Professionals). Zoom offers online training for the highly coveted CCNA, CCNP and CCIE courses as well as MCSE, Linux, VMware, Ethical Hacking and Firewalls, IPv6 with more courses planned for the near future. These are live instructor led courses, using Cisco WebEX. Check out our online course offerings at: **http://zoomgroup.com/online_course**

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There is a high demand for network and security professionals at all times. Apart from job opportunities in India and the Middle East, network and security administrators are also sought-after in the US and Europe.

If you do not have the right skills, then get them now! Choose the experts in network and security training, an organization which has already trained over one hundred thousand engineers.

For the latest job openings in networking and security, register and upload your resume on: **http://zoomgroup.com/careers** or visit zoom to choose job offering from several multinational companies.

ABOUT US

ZOOM Technologies India Pvt. Ltd. is a pioneering leader in network and security training, having trained over a hundred thousand engineers over the last two decades.

We offer a world class learning environment, with state-of-the-art labs which are fully equipped with high-end routers, firewalls, servers and switches. All our courses are hands-on so you'll get much needed practical experience.

The difference between us and the competition can be summed up in one simple sentence. Our instructors are real-time network professionals who also teach.

Zoom has designed, developed and provided network and security solutions as well as training to all the big names in the Indian industry, for the public sector as well as corporate leaders. Some of our clients are:

TATA
BSNL
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Indian Railways
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No other training institute can boast of a customer base like this. This is the reason for the resounding success of our networking courses. If you do not have the right skills, then get them now. Come, join the experts!

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